EFFECT OF COGNITIVE BEHAVIORAL THERAPY ON BODY IMAGE DISTURBANCE, EMOTIONAL REGULATION, AND HOPELESSNESS IN PATIENTS WITH CANCER

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Submitted By

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I hereby declare that the dissertation entitled "**EFFECT OF COGNITIVE BEHAVIORAL THERAPY ON BODY IMAGE DISTURBANCE, EMOTIONAL REGULATION, AND HOPELESSNESS IN PATIENTS WITH CANCER**" submitted towards partial fulfillment of the requirements for the award of **M.PHIL in Clinical Psychology** degree to BFUHS is a compilation of original work carried out by me under the supervision of **Dr. Bholeshwar Prasad Mishra,** Professor & Head, Department of Clinical Psychology, **Dr. Kunal Jain,** Associate Professor, Department of Oncology, **Palak Upadhyay,** Assistant Professor, Department of Clinical Psychology. No part of this thesis has formed the basis for the award of any degree previously.

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DEDICATED TO

To the experiences I never expected
And the paths that were redirected.
To the friends and family I found along the way.

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"کہتے ہیں اگر کسی چیز کو دل سے چاہو , تو پوری کائنات اُسے تم سے ملانے کی کوشش میں لگ جاتی ہے"

"They say when you truly desire something from the heart, the entire universe conspires to bring it to you"

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ABBREVIATIONS

AC	Adjuvant Chemotherapy
APA	American Psychological Association
BC	Breast Cancer
BHS	Beck Hopelessness Scale
BIE	Body Image Evaluation
BID	Body Image Investment
BIS	Body Image Scale
CBM	Cognitive Behavioural Model
CBT	Cognitive Behavioral Therapy
CIA	Chemotherapy-Induced Alopecia
CIBI	Chemotherapy-Induced Body Image
CR	Cognitive Reappraisal
CT	Chemotherapy
ER	Emotion Regulation
ERQ	Emotion Regulation Scale
ES	Expressive Suppression
FU	Follow up
GLOBOCAN	Global Cancer Observatory
HT	Hormonal Therapy
NAC	Neoadjuvant Chemotherapy
RT	Radiation Therapy
SES	Socio Economic Status
TNM	Tumor, Node, Metastasis

ABSTRACT

Introduction: Breast cancer (BC) is the most common malignancy among women worldwide and remains highly prevalent in India. Epidemiological studies predict the global incidence of BC will reach nearly 2 million by 2030. The implications of treatments like mastectomy and chemotherapy, which often involve hair loss, nausea, fatigue, insomnia, and pain, can significantly affect a woman's body image, self-worth, and quality of life (QOL). Cognitive behavioral techniques, including cognitive restructuring, relaxation, skills training, have been shown to alleviate these concerns, potentially enhancing QOL, social functioning, and disease progression.

Aim of Study: 1.To study the pre-and post-effect of Cognitive behavioural therapy (CBT) on body image disturbance in patients with breast cancer. 2. To study the pre-and post-effect of Cognitive behavioural therapy (CBT) on emotional regulation in patients with breast cancer 3. To study the pre-and post-effect of Cognitive behavioural therapy (CBT) on hopelessness in patients with breast cancer.

Materials & Methods: The study was conducted on 31 breast cancer patients within the age group of 18-60 years undergoing chemotherapy or have undergone surgery admitted in oncology ward or visiting oncology OPD at Dayanand Medical College and Hospital. Psychological evaluation was done using The Body Image Scale (BIS), Emotion Regulation Questionnaire (ERQ), and Beck Hopelessness Scale (BHS). Eight sessions in total was carried out for addressing body image disturbance, hopelessness and adaptive way of regulating emotions

Results: CBT resulted in significant improvements in body image disturbances and a notable reduction in hopelessness levels between the pre- and post-treatment groups, as evidenced by mean scores and standard deviations. Although the changes in Cognitive Restructuring were not statistically significant, there was a slight improvement noted. Expressive suppression saw a statistically significant improvement following the intervention. Between the post-treatment and follow-up phases, body image disturbances and expressive suppression continued to improve significantly. However, no statistically significant change was observed in hopelessness levels over time, while CR scores showed significant enhancement, suggesting sustained benefits.

Conclusion: CBT showed promising results in improving body image disturbances, hopelessness and emotional regulation in patients with Breast Cancer.

Keywords: Body Image, Breast Cancer, Chemotherapy, Emotional Distress, Emotion Regulation, Hopelessness, Mastectomy.

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KEY TO MASTER CHART

BID	Body Image Disturbance
CR	Cognitive Reappraisal
ER	Emotional Regulation
ES	Expressive Suppression
FU	Follow up
PRE	Pre- Intervention
SES	Socio-Economic Status

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INTRODUCTION

CANCER

Cancer, word that often invokes fear, refers to a diverse group of diseases known for the uncontrolled proliferation and spread of abnormal cells. The term "cancer" has ancient roots, originating from the Greek physician Hippocrates, known as the "Father of Medicine." He used the word "*karkinos*" to describe tumors, which he noted had crab-like extensions, because the swollen blood vessels around the tumor resembled a crab's legs. [1]

The concept of cancer as a disease characterized by the uncontrolled growth of cells was later expanded by the Roman physician Celsus in the 1st century BCE. The term "cancer" was later adopted into Latin, and from there it entered into the medical terminology of various languages. [1]

Cancer, however, is not a singular disease but rather a broad category encompassing numerous types, each with its own distinct characteristics and behaviors. The underlying commonality among all cancers is the presence of uncontrolled growth and spread of abnormal cells that disrupt the normal functioning of the body. It can occur in virtually any tissue or organ in the body and may manifest as a mass or lump known as a tumor. These abnormal cells have the ability to invade surrounding tissues and, in some cases, metastasize to distant parts of the body through the bloodstream or lymphatic system. [2]

The development of cancer is commonly linked to genetic mutations that result in the disruption of normal cellular processes, leading to unchecked cell division and survival. While some of these mutations may be inherited, others can be acquired due to exposure to various environmental factors, such as tobacco smoke, ultraviolet radiation, certain chemicals, and infections.

Cancer presents a significant global health challenge, with millions of new cases diagnosed each year. It can affect people of all ages, races, and socioeconomic backgrounds. The impact of cancer extends beyond the

physical aspect, affecting individuals emotionally, socially, and economically. Early detection and advances in treatment modalities, including surgery, chemotherapy, radiation therapy, immunotherapy, and targeted therapies, have improved outcomes for many cancer patients. However, challenges such as late-stage diagnosis, treatment accessibility, and the emergence of drug resistance continue to be areas of concern in the ongoing fight against cancer. Ongoing research, awareness, and preventive measures are crucial components in the comprehensive approach to understanding, managing, and ultimately overcoming the complexities of cancer. [3]

EPIDEMOLOGY

The impact of cancer is deeply personal for millions of people all across the globe, with more than 19.3 million cancer cases around the world and 10 million cancer deaths in 2020. Of these, 9.3 million cases were in men and 8.8 million in women. Breast and Lung cancers were the most common cancers worldwide, contributing 12.5% and 12.2% of the total number of new cases diagnosed in 2020. Colorectal cancer was the third most common cancer with 1.9 million new cases in 2020, contributing 10.7% of new cases. [4]

India was ranked *third*, following China and the United States of America, in terms of cancer incidence. For the year 2022, the estimated number of new cancer cases in India was 1,461,427, with a crude rate of 100.4 per 100,000 people.

The leading five sites contributing to the highest cancer burden encompass organs of the digestive system (2,88,054 cases), breast (2,21,757 cases), genital system (2,18,319 cases), oral cavity and pharynx (1,98,438 cases), and the respiratory system (1,43,062 cases). These figures emphasize the diverse spectrum of cancers affecting vital anatomical regions. Lung and BCs were the leading sites of cancer in males and females, respectively. Among the childhood (0-14 year) cancers, lymphoid leukaemia (boys: 29.2% and girls: 24.2%) was the

leading site.[5] In India, *one in nine people* are likely to develop cancer in his/her lifetime. The cumulative risk of developing cancer over a lifetime, between the ages of 0 and 74 years, indicates a noteworthy prevalence. For all cancer sites combined, this risk stands at one in every nine individuals for both sexes. Moreover, the gender-specific risks underscore distinctive challenges in the landscape of cancer prevalence. Males face a 1 in 67 chance of developing lung cancer, while females encounter a more pronounced risk, with a 1 in 29 likelihood of developing BC. GLOBOCAN predicted that cancer cases in India would increase to 2.08 million, accounting for a rise of 57.5 per cent in 2040 from 2020. [5]

PROGNOSIS

The prognosis of cancer, or the anticipated course of the disease, is a multifaceted aspect influenced by various factors such as cancer type, stage at diagnosis, treatment modalities, and individual patient characteristics. Advances in cancer research and treatment have led to improved prognostic outcomes for many individuals, with a growing emphasis on personalized and targeted therapies. According to a study published in the "*Journal of Clinical Oncology"*, survival rates for several common cancers have shown notable improvement in recent years. However, it is crucial to note that the prognosis can vary significantly among different cancer types, and certain malignancies present more formidable challenges. [6]

Cancer development is closely associated with a variety of factors, including genetic predispositions, lifestyle habits, and exposure to environmental carcinogens and viruses, as well as overall health conditions. For example, tobacco use is a recognized risk factor for several types of cancer, such as lung, oral, and esophageal cancers. [7] Moreover, factors like diet, habits, physical activity levels, and infectious agents contribute to the diverse landscape of cancer incidence. Timely diagnosis, access to treatments, and ongoing advancements in precision

medicine contribute to enhancing prognosis. Regular monitoring and follow-up care also play a pivotal role in gauging long-term outcomes.

TYPE OF CANCER

Cancers can be broadly categorized into five main groups based on the type of tissues they originate from. [8,9]

- **Carcinomas**: Carcinomas is the most frequently occurring type of cancer and arise from epithelial cells that line or cover surfaces of the body. They include cancers such as breast, lung, colon, and prostate cancers.
- Sarcomas: Sarcomas develop from connective tissues such as bone, muscle, cartilage, or blood vessels. Examples include osteosarcoma (bone), leiomyosarcoma (smooth muscle), and liposarcoma (fat).
- **Leukemias**: Leukemias are cancers of the blood and bone marrow, characterized by the abnormal proliferation of white blood cells. It typically originates in bone marrow and spreads through the bloodstream Common types include acute lymphoblastic leukemia (ALL) and chronic myeloid leukemia (CML).
- Lymphomas: Lymphomas originate in the lymph nodes or the spleen and spreads through the lymphatic system. Hodgkin lymphoma and non-Hodgkin lymphoma are the two main categories
- **Melanomas**: Melanomas arise from pigment-producing cells called melanocytes. These cancers often occur in the skin but can also develop in the eyes and other mucous membranes. [8] [9]

BREAST

The human breast, a subject of perpetual fascination, serves a multitude of roles across various facets of human life. Renowned for its depiction in art and poetry, the breast elicits arousal, artistic representation, and poetic adoration. The breast, beyond its biological function, occupies a central position of cultural and social significance, often subject to fetishization. Artists and poets throughout history have sought to capture its essence, highlighting its allure and symbolic resonance. The breast is not merely a

physiological entity but a canvas upon which cultural values are projected. [10] In various societies, the breast becomes a nexus of conflicting values and beliefs, drawing attention as a locus of desire, beauty, and femininity. The breast becomes a focal point for societal standards of beauty, influencing perceptions of femininity and sexuality. In the rich tapestry of Indian ancient culture, the depiction of the breast holds profound significance. The sculpted forms of deities and goddesses often showcase the divine feminine through the representation of ample breasts, symbolizing fertility, nourishment, and the creative force of the cosmos. This artistic portrayal serves as a reflection of the reverence accorded to the female form and its association with the sacred. [11] Moreover, ancient Indian texts, including the Vedas and Upanishads, incorporate metaphors involving the breast to convey deeper spiritual and philosophical meanings. In these contexts, the breast becomes a symbol of nurturing wisdom and enlightenment, reinforcing the interconnectedness of the physical and metaphysical realms. The societal importance of the breast in ancient India extends beyond its spiritual connotations. It becomes a marker of fertility, motherhood, and familial prosperity. Cultural norms surrounding modesty and decorum also find expression in the way the female form, including the breast, is depicted and revered within the societal framework. This complex interplay of cultural significance, societal values, and biological realities reinforces the enduring importance of the breast in human discourse. Even in the face of diseases that may afflict it, the breast remains a contentious focal point.

BREAST CANCER (BC)

Disease affecting the breast adds another layer to its cultural and social significance, especially when considering how societal attitudes intersect with the complexities of BC. The discourse around breast health reflects broader narratives of strength, vulnerability, and resilience in the face of a condition that disrupts the fundamental processes of cell growth and division essential for tissue growth and repair in the human body. When

breast tissue cells undergo uncontrolled division and evade programmed cell death, the development of BC ensues, leading to the formation of tumours known as *neoplasms*. Primary tumours may manifest with various signs, such as lumps, nipple discharge, and skin alterations. [12]

Global Perspective:

Globally, BC is the most prevalent cancer among women, with approximately 2.3 million new cases reported in 2020, impacting men at a lower frequency. The incidence varies across regions, being notably higher in developed countries, potentially attributed to factors such as aging populations, reproductive patterns, and lifestyle changes. [13]

BC not only ranks as the most prevalent form of cancer among women worldwide but also stands as the leading cause of cancer-related deaths in this demographic. In 2020, BC accounted for 684,996 deaths globally, with an age-adjusted rate of 13.6 per 100,000. While developed regions reported the highest incidence rates, Asia and Africa together represented 63% of total BC deaths that year. Interestingly, the survival prospects for women diagnosed with BC significantly differ based on economic factors; most women in high-income nations can expect to survive, whereas the prognosis is less optimistic in many low-income and middle-income countries.[13]

Further insights into BC mortality are evident when considering the mortality-to-incidence ratio (MIR), a key indicator reflecting 5-year survival rates. Globally, the MIR stood at 0.30 in 2020. [13] Delving into specific healthcare contexts, regions with advanced healthcare systems such as Hong Kong, Singapore, and Turkey reported impressive 5-year survival rates of 89.6% for localized BC and 75.4% for regional cases. Conversely, less developed nations such as Costa Rica, India, the Philippines, Saudi Arabia, and Thailand have reported lower survival rates for breast cancer, with 76.3% for localized cases and 47.4% for regional cases. [14]

Breast Cancer in the Indian Context:

In India, BC is a significant health concern affecting both women and, to a lesser extent, men. BC constitutes approximately 27.7% of all female cancer cases.The incidence is on the rise, with approximately 162,468 new cases reported in 2020. [4] With rising incidence, understanding its epidemiology is crucial for tailored prevention and intervention strategies.

RISK FACTORS

Several factors, both modifiable and non-modifiable, contribute to the complexity of the disease.[15]

Non-modifiable risk factor

- **Age** is a non-modifiable risk factor, and the likelihood of developing BC increases with advancing age. A significant proportion of cases, approximately 81%, are observed in women aged 50 and above, with nearly half of diagnoses occurring in the 50-69 age group. However, BC can also manifest in women under 35, albeit less frequently. [16]
- **Family history** plays a substantial role, with nearly a quarter of all BC cases associated with familial factors. Women with a first-degree relative affected by BC have an elevated risk, and this risk further escalates in women with two or more affected relatives. [17]
- **Reproductive factors,** including early menarche, late menopause, delayed first pregnancy, and low parity, contribute to an increased risk of BC. Each year's delay in menopause heightens the risk, while early menarche and higher parity act as protective factors. Reproductive factors also show associations with estrogen receptor (ER) status, impacting BC subtypes. [18]
- **Hereditary factors** contribute to 5-10% of BCs, primarily linked to elevated risk through BRCA1 and BRCA2 genes, which also increase susceptibility to ovarian cancer. A 20% frequency of BC is associated with TP53 gene mutations.[19][20] Other high-risk genes, including TP53, CDH1, PTEN, and STK11, along with DNA repair genes like ATM and PALB2, interact with BRCA genes, albeit with a lower risk compared to BRCA

mutations. Recent research has also implicated XRCC2 gene mutations in an increased risk of BC. [21]

- **Race/Ethnicity** differences persist in BC outcomes and the mechanisms behind these disparities are not fully understood. Typically, the incidence rate of BC is highest among white non-Hispanic women. However, black women face significantly higher mortality rates from this disease and have the lowest survival rates within this group. [22] [23]
- **History of BC and Benign Breast Diseases** raises the risk of subsequent malignant developments within breast tissue. Furthermore, a history of benign breast conditions, such as atypical hyperplasia, carcinoma in situ, or various other proliferative or non-proliferative lesions, significantly amplifies this risk. Both the histological categorization of benign lesions and familial BC history are pivotal factors correlating with heightened BC susceptibility. [24-27]
- **Breast tissue** density exhibits variability throughout an individual's lifespan, categorized into low-density, high-density, and fatty breasts within clinical contexts. Elevated breast density commonly occurs in younger females, those with lower BMI, during pregnancy or lactation, and while undergoing hormonal replacement therapy. [28] This increased breast tissue density typically correlates with a heightened risk of BC, a phenomenon observed across both premenopausal and postmenopausal women. [29]As a potential solution, the screening of breast tissue density has been proposed as a promising, non-invasive, and expeditious method for the systematic surveillance of women at elevated cancer risk.[30] [31]

Modifiable risk factors

- **Chosen Drugs** such as use of diethylstilbestrol during pregnancy may be linked to an increased risk of BC in children. [32] [33] The risk extends not only to mothers but also to offspring, regardless of estrogen or progesterone receptor expression, and is associated with various BC histological types. The risk rises with age, with women aged ≥40 being

nearly 1.9 times more susceptible than those under 40, and it increases with higher diethylstilbestrol doses. Additionally, prolonged use of hormonal replacement therapy (HRT), especially beyond 5 or 7 years, is linked to an elevated risk of BC. [34] [35] Some studies suggest a potential association between specific antidepressants, like paroxetine, tricyclic antidepressants, and selective serotonin reuptake inhibitors, and an increased risk of BC. [36] [37] Prolonged antibiotic use and the use of tetracyclines have also been associated with elevated BC risk. [38] [39]

- **Physical activity** is considered a protective factor against breast cancer (BC), although the exact mechanisms are not fully understood. Studies like those by Chen et al. have shown a decrease in BC risk associated with physical activity [40] [41] particularly in women after menopause who have a family history of the disease [42]. Thune et al. also indicate that the protective effect is more pronounced in women who are active after menopause. Several hypotheses suggest that physical activity may lower cancer risk by reducing levels of endogenous sex hormones, improving immune system function, or affecting insulin-like growth factor 1 levels [40] [41].
- **Body Mass Index** :Obesity is particularly linked to an increased risk of BC, especially in women after menopause who are more likely to develop BC that is estrogen-receptor positive. Regardless of their menopausal status, obese women typically face worse clinical outcomes. [43] According to research by Wang et al., women over 50 with higher BMIs are more prone to develop BC and have tumors that are larger and show a greater extent of lymph node involvement. [43] Particularly in premenopausal women, obesity may increase death rates and the chance of a cancer relapse [44]. A higher body fat percentage can exacerbate inflammatory conditions and alter hormone levels in the blood, which can lead to pro-carcinogenic events. [45] Women with a BMI of ≥25 kg/m² frequently experience worse clinical outcomes.

- **Lifestyle factors**, such as excessive alcohol use, smoking, and a diet high in processed foods, are linked to a heightened risk of BC. Alcohol is known to raise levels of estrogen-related hormones, while diets rich in saturated fats are tied to worse outcomes in BC. Smoking, particularly starting at a young age, is another known contributor to the development of BC. [47] [48] Furthermore, the World Health Organization (WHO) has categorized highly processed meat as a Group 1 carcinogen, indicating a higher likelihood of not only gastrointestinal cancers but also BC [49]. Excessive consumption of saturated fats has shown similar links to increased BC risk. The consumption of ultra-processed foods, which often contain high amounts of sodium, fat, and sugar, can lead to obesity, itself a recognized risk factor for BC. [50]

- **Exposure to chemicals**: Chronic exposure to chemicals has been associated with breast carcinogenesis, influencing the tumour microenvironment and inducing epigenetic alterations [51]. Prolonged chemical exposure in females is correlated with a heightened likelihood of BC, with the risk increasing alongside the duration of exposure [52]. Among the chemicals implicated in breast carcinogenesis, dichlorodiphenyltrichloroethane (DDT) and polychlorinated biphenyl (PCB) have been extensively studied due to their disruptive effects on early mammary gland development.[53] Furthermore, potential associations exist between increased exposure to polycyclic aromatic hydrocarbons (PAH), synthetic fibers, organic solvents, oil mist, and insecticides. [54]

  The intricate interplay of diverse risk factors highlights the importance of a comprehensive understanding, providing the foundation for effective risk assessment, screening, and preventive strategies in managing BC. Now, delving into the classification of BC further refines our approach to diagnosis and treatment.

CLASSIFICATION OF BREAST CANCER

BC can be stratified into early, locally advanced, and advanced stages, predicated on the extent of metastasis.

- **Early-stage BC** is confined to the breast or nearby lymph nodes.
- **Locally advanced cases** entail a significant portion of the breast and may extend to infiltrate the skin or muscle.
- **Advanced BC** denotes dissemination to distant body parts or precludes complete surgical removal. [55]

The classification further delineates BC into *Noninvasive and Invasive categories.*

- *Noninvasive BC*, epitomized by ductal carcinoma in situ (DCIS), is characterized by its confinement to the milk ducts, with limited penetration into surrounding tissues. DCIS, considered a precursor to invasive forms, manifests as abnormal cells within the ductal system.[56]
- Conversely, *Invasive BC* entails a more extensive and aggressive infiltration into neighbouring tissues beyond the confines of the ducts. The predominant form of invasive BC, known as invasive ductal carcinoma, involves the penetration of ductal cells into the adjacent tissue.[57]

Within the comprehensive landscape of BC classification, several staging systems serve as instrumental frameworks to meticulously characterize the size, lymph node involvement, and metastatic progression of the disease. Two prominent methodologies employed for this purpose are the *TNM (Tumor, Node, Metastasis) system and numerical staging*. [57]

- The TNM system intricately delineates the extent of the malignancy, providing a nuanced understanding of the primary tumour size (T), the involvement of regional lymph nodes (N), and the presence of distant metastases (M). This detailed classification enables clinicians to precisely assess the disease's anatomical reach, facilitating informed decisions regarding treatment modalities. However, the practical efficacy of the TNM system remains a matter of ongoing debate within the medical community,

with considerations regarding its applicability and interpretative complexities. [58]

- In parallel, Numerical staging, progressing from stage 0 to stage 4, serves as an alternative approach to categorising BC based on the severity and extent of the disease. Noninvasive cancers, such as ductal carcinoma in situ (DCIS), are classified as stage 0, signifying the absence of invasive spread. As one ascends the numerical stages, there is a corresponding elevation in the level of cancer dissemination and a heightened involvement of adjacent anatomical structures.[58] The evolution through these numerical stages reflects a continuum of disease progression, guiding clinicians in gauging the severity of BC and tailoring treatment strategies accordingly. This staging paradigm plays a pivotal role in prognosis determination, treatment planning, and the communication of disease status, offering a standardized framework for clinical decision-making in the complex realm of BC management.

PROGNOSIS

The prognosis of early BC is quietly good. Stage 0 and stage I both have a 100% 5-year survival rate. The 5-year survival rate of stage II and stage III BC is about 93% and 72%, respectively. When the disease spreads systemically, its prognosis worsens dramatically. Only 22% of stage IV BC patients will survive their next 5 years. [59]

DISEASE AND TREATMENT-RELATED CONCERNS

The impact of a BC diagnosis on women is profound, transcending age and social status, as breasts are often perceived as integral to their sense of wholeness and completeness. [60] Beyond their physiological role in nourishing offspring, breasts carry symbolic significance as an erotic organ in relationships and a representation of femininity.[60,61] Consequently, a BC diagnosis elicits a range of emotional responses, including feelings of hopelessness, tearfulness, shame, and discouragement, exacerbated by societal attitudes towards BC patients.[62,63]

BC stands out for the intricate emotional, psychological, and practical challenges entwined with physical symptoms and treatments throughout its trajectory. Those dealing with BC grapple with a range of challenges, encompassing the shock of diagnosis, concerns about health and the future, physical symptoms, and treatment-related adversities such as nausea, fatigue, and alterations in body appearance and functionality. Additionally, the burden of financial strain, changes in occupational and employment status, and psychological difficulties spanning concerns about BI and sexuality to severe disorders like anxiety and depression further contribute to the complexity of the BC experience. [64]

BC patients, because of the treatment side effects and sequelae, are three times more likely to experience physical symptoms and psychological disorders than patients with other kinds of tumours. [65,66] Comparing with colon cancer, BC patients react worse to the diagnosis, showing symptoms of anxiety, depression and somatization and in the beginning of the adjuvant treatment they need more information and involvement of the oncologist in shared decision-making (SDM) and more medical and psychological support.[67]

The National Health and Medical Research Council (2003) played a role in creating guidelines for the psychological support of adults with cancer [64]. It was found that a significant number of people dealing with breast cancer, up to 66%, suffer from ongoing psychological distress. Additionally, around 30% face substantial anxiety issues, while depression rates among this group vary between 20% and 35%. These figures highlight the deep and lasting psychological effects of breast cancer on those affected.

- **Physical issues related to Breast Cancer**

BC survivors navigate a distinct set of challenges, including shifts in weight and alterations in body composition due to adjuvant therapy, persistent side effects like joint pain and menopausal symptoms from ongoing hormone therapy, early onset of menopause, lingering cancer-

related fatigue, restricted arm and shoulder mobility, and psychological issues stemming from changes in BI. Høybye et al. (2011)[68] highlighted that among BC patients in their study, a notable percentage experienced fatigue (66%), lack of concentration (46%), and joint or muscle pains (49%). While digestive (18%) and urinary (11%) functions were affected to a lesser degree, the enduring physical challenges post-treatment serve as a continuous reminder of the disease. [69,70]

Fatigue emerges as a pervasive symptom among cancer patients, with Carlson and Garland (2011) emphasizing its prevalence and disruptive nature, noting it as one of the most enduring symptoms resulting from treatment. [71] Moreover, the incidence of pain remains prevalent among BC patients, with a systematic review indicating rates of 59% during treatment and 33% post-treatment, escalating to 64% in those with metastatic disease.[72] Additionally, sleep disturbances persist as a common symptom post-treatment, affecting patients' emotional stability, attributed to factors such as anxiety, depression, and pain.[71,73,74]

- **Social problems related to Breast Cancer**

Cancer and its treatments not only impact the physical health of individuals but also extend their effects to social aspects. Long-term survivors often experience persistent reductions in social function, with these challenges continuing years after completing treatment. For patients with BC, the costs associated with reduced social function [75] [76] are interconnected with long-term physical and emotional health. Research highlights a strong link between an individual's social connections, increased social integration, and better health results. This includes higher survival rates after heart attacks, lower chances of cancer returning, and enhanced longevity in cancer survivors. [77] [78]

Family functioning undergoes substantial changes, particularly for parents facing a cancer diagnosis. The burdens of illness are added to the

normal responsibilities of family life, and cancer patients often find it challenging to fulfil their usual parental roles. This dynamic exposes internal family structures to significant changes.[79,80] When parents, especially mothers, confront cancer, their ability to be "good" parents is altered due to shifting priorities and the difficulty of focusing on their children's needs amidst their health challenges. [81,82] A study conducted by Fitch, Bunston, and Elliot (1999)[83] explored the experience of being a mother living with a life-threatening illness. The physical impacts of cancer and the disruptions caused by hospital visits were reported as particularly challenging for mothers. The study revealed that the changes in roles and relationships resulting from cancer treatment created tensions for both mothers and their children. The family's ability to adapt to these challenges was linked to effective coping strategies and the support available to them. It emphasized the importance of emotional support alongside instrumental assistance, highlighting the limited emotional support many women received during their cancer journey.[84] Coping with this distress often involves mothers attempting to continue their daily lives with the help of a supportive network of friends and family members, emphasizing the need for comprehensive support systems.

- **Spirituality factor related to Breast Cancer**

Spirituality serves as an intrinsic resource for individuals facing significant stressors, such as BC, encompassing a meaning component, a faith-based element, and an existential coping facet. [85,86] In the Indian context, the acknowledgment of spirituality as a crucial aspect of health and well-being is gaining prominence among cancer physicians and mental health practitioners.[87] Numerous studies indicate that engagement in spiritual and religious activities correlates with improved mental and physical health, enhanced coping mechanisms during illness, and positive medical outcomes.[87] Breitbart [88] interviewed almost 300 BC patients and highlighted that many individuals expressed a need for assistance in finding hope (42%) and meaning (40%) in their lives. These patients also

grappled with issues leading to significant "existential suffering," including feelings of dependency, meaninglessness, hopelessness, being a burden on others, loss of social role, and a sense of irrelevance.

- **Psychosocial factor related to Breast Cancer**

  While cancer diagnosis and treatment have a long history spanning thousands of years, recognition of its psychological impact only gained prominence in the 1950s with the publication of the first studies on psychological responses to cancer.[89] The field of psycho-oncology, defined as the study of both the psychological reactions of cancer patients and their families, as well as the psychological, social, and behavioural factors contributing to cancer, [90] emerged in the 1970s. This development was prompted by various social factors, such as patient rights, and medical advancements, such as improved treatments. In contemporary times, psychological services have become an integral and standard component of cancer therapy.

  Navigating the complexities of BC involves more than just addressing the physical aspects; it encompasses a profound intertwining of emotional, social, and psychological challenges that extend their reach to both patients and their families. From the pivotal moment of diagnosis, individuals embark on a journey marked by decision-making, adaptation to new information, and a spectrum of emotions ranging from fear and anxiety to grief. The psychosocial impact of BC, though often diminishing over time, can be profound, particularly during the demanding phases of treatment. [91]

  The emotional responses to a BC diagnosis are diverse, with shock, sadness, and tears prevailing, especially when patients lack a family history of the disease. Beyond the initial diagnosis, the emotional toll continues through surgeries, chemotherapy-induced BI changes, and the looming fear of recurrence. This emotional rollercoaster is a normal response akin to grieving, as individuals grapple with the significant loss

that a cancer diagnosis represents. [92]

While research suggests that, over time, the psychosocial impact tends to align with general population levels, the period of active treatment presents unique challenges. Factors such as age, disease-related symptoms, perceived lack of support, and prior psychological treatment contribute to psychological distress during this critical phase. Recognizing these challenges as integral to the BC experience underscores the need for targeted interventions that extend beyond medical treatments. [93]

The psychosocial well-being of women facing BC is intricately influenced by a multitude of factors, encompassing self-esteem, social stress, social and psychological support, sense of control, emotional well-being, the stage of illness, type of operation, symptoms, physical fitness, perceptions of illness, coping mechanisms, relationships with healthcare professionals, and cooperation. [94]

Among the psychological challenges encountered, there is a spectrum of intense emotional problems such as fear, anxiety, depression, and disruptions in social roles. [72,95] The fear of the future and the persistent threat of cancer recurrence cast a shadow over the lives of these women, even years post-treatment completion. It is noteworthy that fear is a pervasive emotion experienced at various stages of the BC journey, with studies indicating that a substantial proportion, up to 64%, report experiencing fear. [71]

Additionally, distress is a prevalent psychological symptom in this context. Studies suggest that approximately one in three cancer patient’s experiences elevated levels of depression. This not only leads to considerable suffering but also detrimentally impacts the patient's quality of life (QoL) and may compromise adherence to treatment. [94] In severe cases, depression can even escalate to suicidal thoughts, fuelled by the patient's perception of being a psychological burden to their family.

Along with that a diagnosis of BC can have a profound impact on the intimate aspects of a woman's life. The physical and emotional challenges

posed by the illness, coupled with alterations in BI due to surgery and other treatments, may contribute to difficulties in maintaining a satisfying sexual life. This decline is accompanied by the emergence of depressive symptoms, particularly a loss of sexual desire, as well as the onset of menopausal symptoms. Furthermore, alterations in BI and dissatisfaction with appearance, predominantly stemming from mastectomy, contribute significantly to the sexual challenges faced by these women. [95,96]

Research on women under 50 who are sexually active and have dealt with breast cancer treatments such as mastectomy, possible breast reconstruction, hair loss from chemotherapy, weight fluctuations, poorer mental health, and lower self-esteem, shows these conditions lead to increased dissatisfaction with their body image (BI). Additionally, these women often face deeper misunderstandings in their relationships with partners. [97] This highlights the complex relationship between physical changes, mental health, and interpersonal dynamics in influencing the sexual well-being of women dealing with BC.

The distressing reality emerges that over one-third of women grappling with BC are susceptible to developing major depressive disorder, generalized anxiety disorder, or difficulties in adjusting.[98] It's worth noting that the very treatments designed to combat cancer can contribute to a cascade of psychological effects, including diminished self-esteem, disorders related to BI, decreased interest in sexual relations, and the deterioration of personal and professional relationships. [99]

BODY IMAGE

BI encompasses a complex array of perceptions, emotions, and evaluations regarding one's physical appearance, both conscious and unconscious, as well as awareness of how others perceive them. [100] It serves as a direct personal assessment of one's body, and negative thoughts or feelings about one's physical form can disrupt this perception,

leading to discomfort. [101,102]

It is widely understood within the literature as a multifaceted concept, encompassing various dimensions such as perceptual (e.g., accuracy of body size estimation relative to actual size), attitudinal (e.g., subjective (dis)satisfaction of the body), affective (e.g., feelings associated with the body), cognitive (e.g., investment in appearance beliefs about the body), and behavioral (e.g., compensatory behaviors such as dieting) dimensions. [103]

Medical treatments such as chemotherapy, surgery, and adjuvant therapy often result in various changes to the body, including chemotherapy-induced alopecia, weight gain, and alterations to breast shape or removal of one or both breasts, scarring, and asymmetry, among others. [101,104-107]

Changes in the physical appearance can make women uneasy and lead to BI disturbances. [108-111] Studies have reported the prevalence of BI disturbances to range from 31% to 67%. [109,112,113]

These alterations can significantly impact BI, affecting a woman's sense of identity, sexuality, self-esteem, quality of life and overall psychological well-being.[114-116] potentially leading to the adoption of unhealthy behavioral patterns and exacerbating negative emotional states. [117-120] BI disturbance can lead to psychological distress and is associated with depression and anxiety.[121]

Hopwood et al. (2001)[122] identified three key areas characterizing the complexity of BI in women who have undergone BC treatment. These areas include affective aspects such as feeling feminine and attractive, behavioral patterns like avoiding social interactions due to appearance concerns, and cognitive evaluations regarding satisfaction with appearance or acceptance of scars.Various studies have explored the impact of BC surgeries, such as mastectomy, on women's BI. Comparisons between mastectomy and breast-conserving therapy have consistently shown that mastectomy patients often experience poorer BI perceptions. [119,123] Ardakani et al. (2020)[124] noted that Iranian women

undergoing mastectomy experienced disruptions in their perceived "perfect body," leading to worsened BI. Age is also a factor, with younger women typically reporting lower BI perceptions post-surgery. [120]Negative BI appraisal can lead to various adverse consequences, including reduced life satisfaction, changes in relationships, poor social functioning, and decreased overall quality of life. [125-128] Moreover, BI disturbances, such as breast disfigurement, visible scars can cause psychological distress, undermine self-confidence, and hinder post-surgery growth and cognitive functioning. [109,127,129,130]

THEORIES AND MODEL OF BODY IMAGE

- **Cash's cognitive-behavioral model of Body Image** [103]

  Cash's CBM of BI is widely acknowledged and forms the basis for empirically-supported interventions designed to address BI issues in both the general population and those with eating disorders. Central to this model are two main types of BI attitudes: Body Image Evaluation (BIE) and Body Image Investment (BII). BIE concerns how content or discontent a person is with their appearance, including any differences they perceive between their actual and desired physical traits. Conversely, BII relates to the importance or significance an individual assigns to their appearance and physical characteristics.

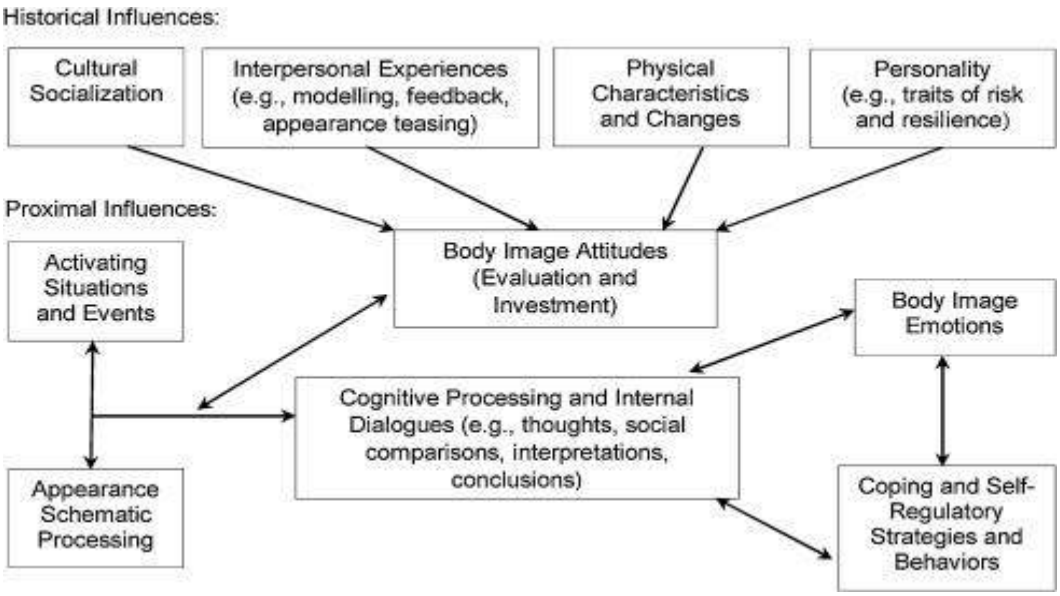
Historical Influences:
Cultural Socialization
Interpersonal Experiences (e.g., modelling, feedback, appearance teasing)
Physical Characteristics and Changes
Personality (e.g., traits of risk and resilience)
Proximal Influences:
Activating Situations and Events
Body Image Attitudes (Evaluation and Investment)
Body Image Emotions
Cognitive Processing and Internal Dialogues (e.g., thoughts, social comparisons, interpretations, conclusions)
Appearance Schematic Processing
Coping and Self-Regulatory Strategies and Behaviors

Figure 1: Cash's CBMI of Body Image (Cash, 2012)[103]

For instance, consider a BC patient attending a follow-up appointment with a reconstructive surgeon. She expresses significant dissatisfaction with the outcome of her treatment (negative BI evaluation). This patient highly values her appearance (high BI investment) and voices concerns about the appearance of her scars and the size of her breasts, which do not meet her desired standards. She experiences distress over the fit of her clothes and prefers to avoid public outings.

Cash's model emphasizes the influence of cultural socialization, interpersonal experiences, and personality traits on the development of BI attitudes. Additionally, it acknowledges that changes in physical functioning and appearance, such as those experienced by cancer patients undergoing treatment, can significantly impact BI attitudes. Cash distinguishes between historical factors, which encompass past experiences shaping BI attitudes, and proximal factors, which pertain to current life experiences. Cancer and its treatment are considered critical proximal events that trigger self-evaluations of physical appearance and bodily functioning.

- **White's cognitive-behavioral model**[131]

  In the context of cancer, White's CBM builds upon Cash's framework,

focusing specifically on how patients perceive and respond to changes in appearance resulting from cancer and its treatment. He proposed a heuristic cognitive behavioral model of BI particularly focusing on women diagnosed with BC. This model suggests that upon receiving a cancer diagnosis, individuals' pre-existing appearance-related schemas are activated. These schemas, formed through personal experiences and societal influences, shape individuals' perceptions of their bodies. As a result, individuals may increase their focus on appearance and begin judging themselves based on their altered physical condition. They might view themselves as unattractive or imperfect due to bodily changes from cancer treatments like mastectomy or chemotherapy. Such negative self-perceptions can profoundly affect their self-esteem and overall well-being. In response to these feelings, individuals might adopt various strategies to enhance their appearance. These strategies can involve applying makeup to cover scars, using prosthetics to mimic natural body shapes, or choosing specific clothing styles to hide physical alterations.

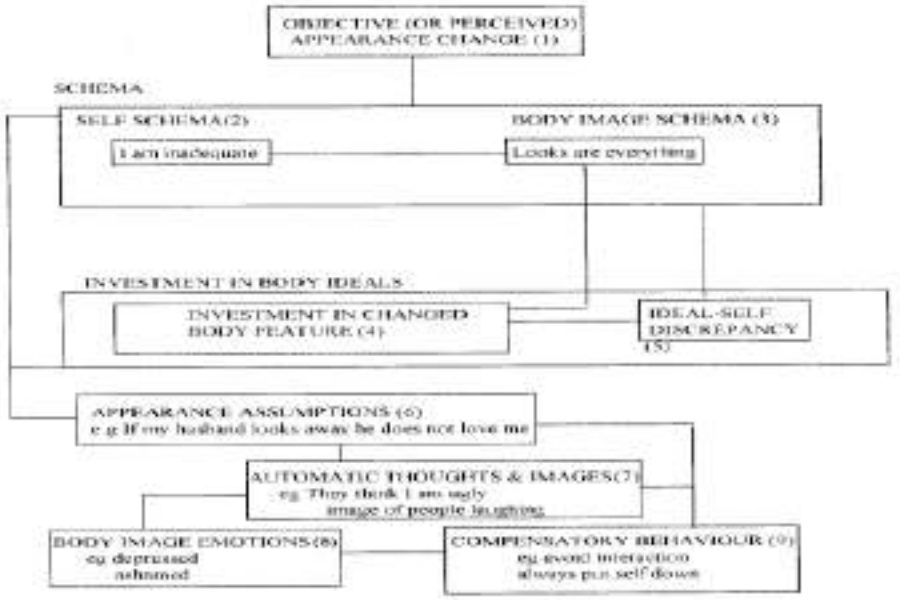
OBJECTIVE (OR PERCEIVED) APPEARANCE CHANGE (1)
SCHEMA
SELF SCHEMA (2)
I am inadequate
BODY IMAGE SCHEMA (3)
Looks are everything
INVESTMENT IN BODY IDEALS
INVESTMENT IN CHANGED BODY FEATURE (4)
IDEAL-SELF DISCREPANCY (5)
APPEARANCE ASSUMPTIONS (6)
e.g. If my husband looks away he does not love me
AUTOMATIC THOUGHTS & IMAGES (7)
e.g. They think I am ugly
image of people laughing
BODY IMAGE EMOTIONS (8)
eg depressed
ashamed
COMPENSATORY BEHAVIOUR (9)
eg avoid interaction
always put self down

Figure 2: A heuristic model of important Body Image dimensions [131]

- **Piran's (2017) Developmental Theory of Embodiment**[132]

  It offers a unique perspective on BI within the context of cancer and other chronic illnesses. It explores the connection between body image (BI) and

chronic illnesses like cancer. It suggests that individuals' experiences of their bodies are shaped by developmental processes, including interactions with their bodies and societal messages about appearance. In the context of cancer, diagnosis and treatment can disrupt this sense of embodiment, leading to psychological distress. This theory underscores the importance of holistic approaches that consider individuals' subjective experiences, societal influences, and developmental history in addressing BI concerns in cancer patients.

- **Fingeret Conceptualization of Body Image Concerns** [133]

  Fingeret's conceptualization of body image (BI) concerns among cancer patients outlines a continuum of adjustment difficulties, ranging from mild to extreme. Patients with mild to moderate concerns may engage in social situations with some self-consciousness, while those with extreme concerns may withdraw from social interactions entirely. The model highlights that patients often downplay their BI difficulties due to feelings of shame or embarrassment. Rather than viewing BI concerns as pathological, it recognizes them as a normative experience during cancer treatment. By acknowledging this spectrum, Fingeret's model emphasizes the importance of tailored treatment approaches to address the varying needs of individuals along the continuum of BI adjustment difficulties.

HOPELESSNESS

Hope, according to the APA (2018), is the “the expectation that one will have positive experiences, or that a potentially threatening or negative situation will ultimately result in a favourable state of affairs.” [134] According to Thema Bryant, [135] it isn’t a denial of what is, but a belief that the current situation is not all that can be.

Cancer patients often grapple with a spectrum of psychological reactions, including fear, depression, pessimism, and at times, despair. [129] In this context, hope emerges as a valuable and effective coping strategy,

offering cancer patients the strength to confront challenges and come to terms with the reality of their illness. Numerous studies, such as those conducted by Sanatani et al. (2008) [136] and Schjolberg et al. (2011) [137], emphasize hope as a catalyst, empowering patients to actively engage in their treatment, fostering acceptance, and potentially improving prognosis and survival rates.

The significance of hope in the lives of BC patients extends beyond mere psychological well-being. Research, including studies by Manor-Binyamini (2020) [138] and Shen et al. (2020) [139] , underscores hope as a pivotal factor influencing overall survival, quality of life, social support, and well-being during survival, and psychological distress. Hope serves as an inner reservoir of strength, providing patients with the vigour to face adversity. It serves as a powerful motivator that not only aids in setting positive goals but also in harnessing both internal and external resources, allowing patients to actively tackle the difficulties associated with their illness (Wu et al., 2016). [140]

Importantly, a lower level of hope has been correlated with a heavier psychological burden and an increased susceptibility to depression among cancer patients. [141] [142] Recognizing hope as a crucial element in the well-being of BC women undergoing chemotherapy emphasizes its role not only as an emotional support mechanism but also as a determinant of mental health outcomes. Therefore, fostering hope becomes an integral aspect of comprehensive care, contributing not only to emotional resilience but also potentially influencing the overall trajectory of the patient's cancer journey.

THEORIES AND MODEL OF HOPELESSNESS

- **Snyder's Hope theory (2002)** [143]

  It is a psychological framework that explores the role of hope in human motivation and well-being. This theory is grounded in the belief that hope is a cognitive process involving the anticipation of positive outcomes, the development of strategies to achieve those outcomes, and the motivation

to pursue those goals.

There are **four key** components of the theory:

1. **Goals**: At the core of hope theory are the individual's goals. These can be broadly categorized into "approach goals," which involve moving toward a positive outcome, and "avoidance goals," which involve moving away from a negative outcome. Goals are seen as critical drivers of behaviour.
2. **Agency**: Agency refers to the belief that one can initiate and sustain actions to achieve their goals. It involves a sense of empowerment and personal efficacy. Individuals with high agency believe in their ability to influence outcomes through their actions.
3. **Pathways**: Pathways refer to the various routes or strategies one can use to reach their goals. High-hope individuals are skilled at generating multiple pathways to achieve their goals. They are flexible and adaptive in finding ways to overcome obstacles.
4. **Willpower**: Willpower, also known as "waypower" in hope theory, is the motivation and determination to pursue goals despite challenges and setbacks. It involves resilience and the ability to persevere in the face of difficulties.

In essence, hope, according to Snyder (2002) [143] , is a dynamic and cognitive motivational system that involves setting realistic goals, identifying multiple pathways to achieve those goals, believing in one's capacity to act effectively (agency), and having the willpower to persevere. Individuals with high levels of hope are more inclined to set challenging goals, envision multiple pathways to achieve them, and display increased motivation and resilience in their pursuit. Conversely, hopelessness is characterized by the belief that one will not experience positive emotions or see any improvement in one's condition.

- **Scioli And Biller's Forms of hopelessness**

Sciolia and Biller have identified various forms of hopelessness, encompassing different aspects of human experience: [144]

1. **Emotional Disconnection:**

1.1. **Alienation**: This involves feeling estranged or disconnected from oneself, others, or society. It may manifest as a sense of not fitting in or a lack of meaningful connections.

1.2. **Forsakenness**: This pertains to the feeling of being abandoned or deserted, either emotionally or physically, which can lead to a profound sense of loneliness and despair.

1.3. **Lack of Inspiration:** Individuals experiencing this type of hopelessness struggle to find sources of motivation or inspiration, making it challenging to engage with life with enthusiasm and purpose.

2. **Existential Challenges:**

2.1. **Doom**: A pervasive sense of doom involves anticipating impending disaster or unavoidable failure, leading to a constant state of apprehension and fear about the future. Fear of recurrence or progression of cancer can contribute to a pervasive sense of doom.

2.2. **Helplessness**: This type of hopelessness is characterized by a feeling of being powerless and incapable of influencing or improving one's situation, leading to a mindset of giving up. Patients might feel powerless in the face of treatment decisions, side effects, and the unpredictability of the disease.

2.3. **Captivity**: Feeling trapped or captive in adverse circumstances, whether physically or metaphorically, can lead to a profound loss of autonomy and freedom. Restrictions on their daily life, physical abilities, and social interactions can contribute to a sense of captivity.

3. **Lack of Agency and Freedom:**

3.1. **Powerlessness**: Individuals experiencing powerlessness feel a lack of control or influence over their lives, contributing to a sense of vulnerability and an inability to shape their own destiny.

3.2. **Oppression**: This involves experiencing unjust and burdensome treatment or restrictions, often in a systemic or societal context, leading to a feeling of being unfairly constrained.

3.3. Limitedness: Feeling limited encompasses a sense of being restricted or constrained in terms of possibilities, opportunities, or personal growth, creating a perception of stagnation or unfulfilled potential.

- **Abramson's and Beck's theories of Hopelessness**

  Abramson's and Beck's theories that elucidate how maladaptive cognitive styles contribute to an individual's vulnerability to major depression, provides valuable insights for interpreting and comprehending depressive conditions.

  Abramson, along with her colleagues, [145] proposed a nuanced perspective indicating that challenging life events are key in initiating generalized hopelessness, which then contributes to symptoms of hopelessness depression. According to this theory, the attribution of negative life events to causes that are perceived as stable (unlikely to change) and global (likely to impact various aspects of life) intensifies the experience of hopelessness. In simple words, some people are predisposed to depression due to a cognitive vulnerability that interacts with stressful life events. Cognitive vulnerability is defined as an individual tendency to make specific inferences about the causes, consequences, and self- worth implications of stressful life events. This cognitive vulnerability involves a predisposition to view adversity through a pessimistic lens, making it crucial to address and modify maladaptive cognitive patterns in therapeutic interventions aimed at preventing or alleviating symptoms of hopelessness depression.

  In Beck's theoretical framework, [146] hopelessness is elucidated through a negative triad encompassing a pessimistic view of oneself, one's immediate surroundings, and one's future. Individuals characterized by this negative cognitive style are deemed more susceptible to depression due to their tendency to consistently interpret and recall information from

stressful events with negative consequences. Notably, hopelessness has been consistently identified as a robust predictor of suicidal ideation and, ultimately, suicidal behaviour.

Hopelessness within the framework of a BC diagnosis frequently arises due to the uncertainties surrounding prognosis and treatment outcomes, resulting in a profound sense of despair. The formidable physical and emotional challenges associated with treatments, including surgery and chemotherapy, compounded by potential alterations in BI, can exacerbate feelings of hopelessness. Strained relationships, financial burdens, and practical considerations may amplify sensations of powerlessness and isolation. [147-149]

EMOTIONS

According to the APA [150] , emotions are conscious mental responses (like anger or fear) that are subjectively felt as intense sensations, often directed towards a specific object.[151] These responses are typically accompanied by physiological and behavioural changes in the body.

In the context of BC, these emotional changes can be profound and multifaceted. Patients undergoing a cancer diagnosis may encounter positive emotions like hope and gratitude, yet many also grapple with challenging negative emotions, including anxiety, uncertainty, sadness, anger, guilt, and fear. [152-155]

While these emotions are typical responses to the diagnosis, their impact can vary from unpleasant to debilitating, sometimes leading to psychological disorders like major depression or situational/generalized anxiety. The emotional concerns of cancer patients are extensive, as highlighted by a 2013 study revealing prevalent issues among survivors such as defining a new normal, managing stress, fear of recurrence, and living with uncertainty. [156] The emotional impact can persist throughout the treatment process, affecting the ways individuals manage the physical and emotional challenges of the disease.

Emotional regulation plays a crucial role throughout the treatment journey of chronic illnesses, influencing how individuals cope with both the physical and emotional challenges of their condition. Defined by Gross (2002) [157] Emotion regulation (ER) includes a diverse range of actions intended to influence "which emotions we have, when we have them, and how we experience and express them". Essential for managing the psychological impact, reducing stress, and fostering resilience, emotional regulation becomes a vital tool in enhancing overall well-being and navigating the persistent challenges associated with living with a chronic illness. [158] Upon receiving a cancer diagnosis, individuals are confronted with the challenging task of navigating a diverse spectrum of emotions. It has become evident that the manner in which cancer patients navigate and regulate these emotions plays a pivotal role in shaping their psychological well-being and overall adaptation to the challenges posed by cancer. [159,160] ER refers to attempts to influence which emotions one has, and how one experiences and expresses these emotions. [161,162]

Adopting a cognitive-mediational framework of emotion [163] proves valuable in defining ER. In this conceptualization, ER is considered the method by which individual modulate various subcomponents of the emotion system. This includes elements contributing to emotion, such as an individual's personal appraisal of the situation, as well as the response tendencies generated by emotions, encompassing feelings, expressive behaviors, and physiological reactions.[164] The mechanisms involved in ER consist of *three primary components*: input regulation, which involves strategies altering factors shaping the generation of emotion, like attentional deployment; reappraisal, encompassing strategies altering the meaning of an encounter, such as adopting a more positive perspective on a situation; and output regulation, involving strategies used to manage emotional responses, including the expression of emotion. [161,162,165]

Emotion regulatory behaviors encompass various overt and subtle actions, including re-appraisal, distraction, avoidance, escape,

suppression, emotion- and problem-focused coping, and the use of substances to modulate emotional experiences. These strategies encompass a multitude of actions applicable to both positive and negative emotional states. [166] While diverse, most strategies involve actions aimed at modifying the form, frequency, duration, or situational occurrence of events preceding an emotional response, as well as the events following such a response. [161] According to the process model of ER[167], the timing of these strategies can yield varying consequences, emphasizing that the effects of ER depend on when they are employed.

Process Model of Emotion Regulation [167]

This model categorizes ER into five distinct strategies, each serving as a unique approach to managing and modulating emotional experiences:

- **Situation Selection**: It involves making decisions to engage in or steer clear of certain situations based on predicted emotional reactions. For instance, a BC survivor might choose to join a support group to meet others with similar experiences, expecting to feel positive emotions and a sense of belonging.
- **Situation Modification:** Encompasses efforts to alter the context or elements of a situation with the aim of influencing one's emotional experience. For instance, a patient undergoing chemotherapy may modify their treatment space by personalizing it with comforting items, creating a more positive and emotionally supportive atmosphere.
- **Attentional Deployment:** Occurs when individuals deliberately focus their attention on specific aspects or divert their focus away from certain stimuli to manage the emotional content of the situation. An example could be a patient engaging in mindfulness practices during medical procedures to redirect their focus and mitigate anxiety.
- **Cognitive Change**: Involves the process of reappraising a scenario, wherein individuals intentionally reconsider and reinterpret an event to alter its emotional significance. For instance, a patient might reinterpret a

setback in their treatment plan as a temporary challenge, fostering a more positive emotional response and resilience.

- **Response Modulation:** Encompasses any deliberate effort to alter behavioral responses to an emotional event. This can include the suppression, concealment, or exaggeration of one's outward expressions in response to emotions. For example, a patient may consciously suppress feelings of fear during a medical appointment to maintain composure and convey a sense of calm to their loved ones.[167]

STRATEGIES OF EMOTIONAL REGULATION

Two major ER strategies that have been particularly studied are *cognitive reappraisal and expressive suppression.* [161]

Specifically, **Cognitive Reappraisal (CR)** involves altering the interpretation of an event that triggers emotions to modify its importance and reduce its emotional effects. On the other hand**, Expressive Suppression (ES)** involves efforts to hide or mitigate the display of emotions that are currently being experienced. [168] [169]

Studies on the dynamic nature of emotions indicate that CR and ES affect the emotional process at various stages. CR operates early in the emotional sequence, engaging before emotional responses are fully triggered. This strategy can influence the entire timeline of the emotional response before it fully forms. [170] This distinction underscores how CR, by addressing emotional triggers early, potentially alters the whole course of an emotional experience.

ES is a response-focused strategy that intervenes once an emotion is already under way and after the behavioural responses have already been fully generated. It thus might be expected to require repeated efforts to manage emotional responses as they continually arise, leading to depleting cognitive resources, adversely affecting social performances and fostering a perceived misalignment between inner feelings and outward expression in individuals. [170]

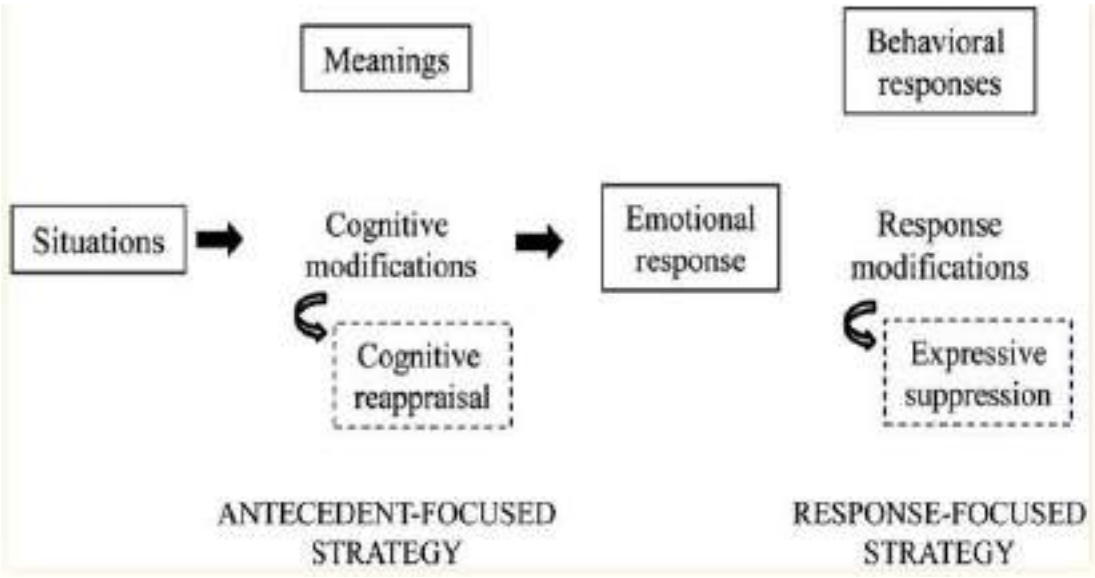

Figure 3: A Schematic Representation of Emotion Regulation [170]

While the focus here is on reappraisal and suppression strategies, it's essential to note that other antecedent-focused approaches (e.g., situation selection and modification, attentional deployment) or response-focused strategies (e.g., drug use, social sharing, and relaxation) can also play crucial roles in regulating everyday affective experiences. [170]

Although suppression may help a person to avoid undesirable interpersonal consequences that can follow from expressing negative emotions, suppression has generally been found to be ineffective in reducing the negative emotions themselves. Mauss (2005) [171] in an experimental study found that individuals who were told to suppress their emotions while watching a film meant to induce negative emotions still reported negative feelings despite their efforts to suppress them. Those who were told to use a reappraisal strategy, on the other hand, reported fewer negative feelings.[161] Thus, suppression exhibits a contrasting effect, diminishing the experience of positive emotions and maintaining the subjective experience of negative emotions, while exacerbating physiological activation. [169,172-176]

Baziliansky & Cohen (2020) [176] carried out a study on colorectal cancer survivors and revealed that there exists distinct ER patterns, including

repression, suppression, experiential avoidance, and CR. And CR was found to have negative associations with suppression and experiential avoidance, but a positive link with self-compassion. Recognizing these varied patterns thus becomes crucial for healthcare professionals in tailoring support for individual survivors.

In a collective analysis of studies examining emotional regulation in various cancer populations, CR emerges as a consistently positive factor, while ES raises concerns. Guimond and colleagues (2018) [177] found that among women undergoing radiation therapy for non-metastatic BC, higher levels of CR were marginally linked to reduced fear of cancer recurrence, contrasting with the negative impact of ES on subsequent depression and fatigue. Similarly, Su et al.'s study (2022) [178] involving newly diagnosed lung cancer patients highlighted the prevalence of high cancer fear, associating it with increased depression and anxiety. Notably, CR demonstrated a negative correlation with these emotional distress indicators, emphasizing its potential as a beneficial strategy. Moreover, in a study by QianLü et al. (2018) [179] on Chinese American BC survivors, baseline ambivalence over emotional expression was associated with lower quality of life, underscoring the detrimental effects of emotional conflict. Crucially, CR emerged as a moderating factor, suggesting that its effective use could mitigate the negative impact of ES on follow-up quality of life.

TREATMENT

BC, a pervasive health challenge impacting millions globally, demands a nuanced and comprehensive treatment approach rooted in evidence-based practices. As one of the most prevalent cancers affecting women, the relentless pursuit of effective interventions has led to a diverse array of therapeutic modalities. Few of them are as follows:

- **SURGERY:** Most patients with BC have surgery to remove the cancer.

- **Breast-Conserving Surgery**: It involves the removal of the cancerous tissue along with a margin of normal tissue surrounding it. The breast itself is preserved, and in some cases, part of the chest wall lining may be removed if the cancer is in close proximity. This surgery is known by various names, including lumpectomy, partial mastectomy, segmental mastectomy, quadrantectomy, or breast-sparing surgery. [180]
- **Mastectomy**: It entails the removal of the entire breast affected by cancer. There are several types of mastectomy, each involving the removal of varying amounts of breast tissue. [181,182] The choice of mastectomy type depends on factors such as the extent of the disease, tumor size, the location within the breast, and the patient's preferences. [183] Common types of mastectomy:
- **Total (Simple) Mastectomy:** This procedure involves the removal of the entire breast, including the breast tissue, nipple, areola and excess skin from the chest wall, leaving only enough skin to close the incision. However, the chest muscles are left intact, and lymph nodes may or may not be removed during the surgery. It is generally used when the patient will not undergo immediate reconstruction. [182,183]
- **Modified Radical Mastectomy:** In this, the entire breast is removed, along with the nipple, areola, and some of the overlying skin. Additionally, the lymph nodes in the axilla (underarm) are typically removed to assess if cancer has spread to the lymphatic system. [182,183]
- **Skin-Sparing Mastectomy:** This type of mastectomy involves the removal of the breast tissue, nipple, and areola, while preserving as much of the breast skin as possible. It is often performed when immediate breast reconstruction is planned. [181,182]
- **Nipple-Sparing Mastectomy**: It preserves the breast skin, nipple, and areola, while removing the underlying breast tissue. This approach is commonly used in combination with breast reconstruction to maintain a more natural breast appearance. [181,183]

- **Radical Mastectomy:** It is an extensive procedure involving the removal of the entire breast, underlying chest muscles, and the lymph nodes in the axilla. This approach is now less common due to advances in BC treatment, and modified radical mastectomy is often preferred. [182,183]

❖ **RADIATION THERAPY** is a vital component of cancer treatment, employing high-energy x-rays or other radiation types to either eliminate cancer cells or impede their growth. [184] There are two principal approaches to radiation therapy:

- External Radiation Therapy: This method utilizes a machine positioned outside the body to administer targeted radiation to the specific area afflicted by cancer. It is frequently employed in the treatment of BC, directing focused beams of radiation towards the affected breast tissue.
- Internal Radiation Therapy: This method involves encapsulating a radioactive substance in needles, seeds, wires, or catheters. These devices are then placed directly into or near the cancerous area. This approach facilitates a more localized and concentrated delivery of radiation. An example of internal radiation therapy involves the use of strontium-89, a radionuclide with a specific focus on alleviating bone pain associated with BC that has metastasized to the bones. [185]

❖ **HORMONE THERAPY** also referred to as endocrine therapy, stands as a pivotal intervention in the battle against hormone-sensitive tumors, exerting its influence by impeding the growth of cancer cells. This is achieved either by obstructing the body's hormone production or by disrupting the impact of hormones on BC cells. Hormones, produced by various glands in the body, circulate in the bloodstream and can stimulate the growth of certain cancers. When tests reveal the presence of receptors on cancer cells that hormones can attach to, a targeted approach is adopted. Drugs, surgery, or radiation therapy may be employed to diminish hormone production or inhibit their effects, a process known as ovarian ablation. [186,187]

- **IMMUNOTHERAPY** revolutionizes cancer treatment by empowering the body's immune system. In BC, biomarker tests predict response to immunotherapy drugs like immune checkpoint inhibitors, such as pembrolizumab. These drugs enhance T cells' ability to target and destroy cancer cells by blocking immune checkpoints. [188]

- **CHEMOTHERAPY**, a pivotal component in the therapeutic armamentarium against cancer, entails the utilization of drugs to obliterate cancer cells by disrupting their growth, division, and replication processes. This potent intervention is strategically employed in various scenarios, including pre-surgical administration to reduce tumor size, facilitate surgical procedures, and diminish the risk of recurrence—a regimen termed neoadjuvant chemotherapy. Conversely, post-surgical chemotherapy, referred to as adjuvant chemotherapy, is administered to mitigate the likelihood of cancer recurrence.[189] The scheduling of chemotherapy sessions varies and is tailored based on the outcomes of clinical trials specific to the regimen in question. Treatment frequencies may span weekly, biweekly, or triweekly administrations. A diverse array of chemotherapy drugs is employed in BC treatment, many of which are available as generic medications. [190,191]

  Commonly used chemotherapy drugs encompass Docetaxel, Paclitaxel, Doxorubicin, Epirubicin, Capecitabine, Carboplatin, Cyclophosphamide, Fluorouracil (5-FU), Methotrexate, and Protein-bound Paclitaxel. The selection of these drugs, whether administered individually or as part of a combination, is tailored to the specific characteristics of the cancer, ensuring a comprehensive and effective therapeutic approach for the patient. [191]

Treatment of BC unfolds as a comprehensive journey extending beyond the mere excision of tumors. This transformative process encompasses a

spectrum of physical, psychosocial, and sexual impacts intricately shaping the individual's post-surgery experience. Physically, challenges such as pain, restricted arm mobility, and the potential onset of lymphedema manifest in the aftermath of surgery.[192] Psychosocially, the landscape revolves around concerns related to BI, emotional resilience, and the indispensable role of a robust support network.[193] Concurrently, the sexual domain undergoes transformation, requiring delicate navigation and open communication with partners, navigating changes in intimacy, satisfaction, and hormonal dynamics.[194]

Surgical complications may encompass infection, pain, bleeding, cosmetic issues, fatigue, pain, permanent scarring, and alterations in sensation in the chest area. Chemotherapy introduces complications such as nausea/vomiting, hair loss, memory loss, vaginal dryness, menopausal symptoms, and neuropathy. Hormonal therapy may entail complications like hot flashes, vaginal discharge dryness, fatigue, nausea, and impotence, particularly in males with BC. Radiation therapy may lead to complications such as pain, skin changes, fatigue, nausea, hair loss, and long-term issues affecting the heart and lungs.[59]

According to Hesketh et al. (2004), recognizing hair loss is crucial as it significantly affects treatment choices and mental health, highlighting the need for a comprehensive approach to patient care. [195] Strategies such as individualized interventions, educational programs, support group engagement, and self-care practices emerge as essential components for effectively managing the psychosocial impact of CIA. Building on this, Choi et al.'s (2014) [196] further underscored the far-reaching consequences of CIA-related distress among BC patients. With 168 participants, their study reinforces the association between heightened distress levels and various aspects of diminished well-being, including poorer BI, compromised emotional and social functioning, and increased rates of depression.

INTERVENTIONS

The imperative for integrating psychotherapy into the comprehensive care paradigm for BC patients is indisputable, given the intricate interplay between the physical and psychological dimensions of this formidable medical challenge. BC, beyond its manifest physical toll, permeates the emotional fabric of individuals, introducing a myriad of psychosocial complexities that can significantly impact overall well-being. Diagnosis and subsequent treatments, including surgery, chemotherapy, and radiation, often introduce a multitude of challenges, both physical and emotional. Individuals confronted with BC contend with an array of challenges, including pain, fatigue, alterations in BI, and the pervasive fear of recurrence, [197,198] Moreover, extensive studies on psychological comorbidities in BC patients reveal a spectrum of prevalent conditions. These include depression, [199-201] cognitive alterations,[202-206] hopelessness, [147] [207] anxiety,[208-210] distress[211-213] , sleep disorders, [213,215] fatigue,[216] and diminished quality of life.[217-219] These psychological burdens are not incidental but pervasive, affecting the mental health of individuals traversing the intricate journey of diagnosis, treatment, and survivorship. [220-223] Psychotherapy, with its nuanced and tailored approaches, becomes a beacon of support in navigating these complexities.

Psychotherapy stands as a non-pharmacological intervention designed to address psychological morbidities. Various psychotherapeutic approaches offer a diverse array of assistance and intervention. These encompass cognitive therapies, behavioral therapies, cognitive-behavioral therapies, psychoeducational strategies, psychodynamic therapies, systemic therapies, and group therapies, each widely utilized in clinical practice. [224] Given the variability in medical treatments for cancer and the resulting psychological outcomes experienced by individual patients, contingent upon their specific cancer stage, the imperative arises to employ psychotherapy as an essential tool for addressing mental health

challenges on an individualized basis. Scientific evidence from systematic reviews and randomized controlled trials, [225-230] as well as comprehensive reviews, [231] consistently affirms the efficacy of psycho-oncological intervention in alleviating fatigue, anxiety, and depression, while concurrently enhancing the overall quality of life for individuals navigating BC. Notably, these positive effects persist in both short- and long-term follow-ups. [232-234]

COGNITIVE BEHAVIOURAL THERAPY

Cognitive-behavioral therapy (CBT) stands out as the predominant and efficacious intervention for addressing diverse psychosocial challenges encountered by individuals diagnosed with BC. It is a brief and focused therapeutic approach typically spanning eight to twelve sessions. Throughout this duration, individuals undergoing CBT gain insights into identifying and altering destructive or distressing thought patterns that negatively impact their behaviour. [235] The cognitive-behavioral approach places significant emphasis on operationally expressed concepts and empirically validated treatments. It employs a diverse array of techniques encompassing behavioral activation, cognitive restructuring, motivation exercises, biofeedback, mindfulness, and meditation. Additionally, it incorporates relaxation and skills training, covering emotional, social, coping, and communication aspects.[200,212,215,216,218,219,236-238]

The therapeutic focus is predominantly on the "Here and Now," operating under the assumption that the primary goal of treatment is to facilitate desired changes in the patient's life. Consequently, individuals engaged in CBT for BC concerns are guided to gain control over their thoughts. This involves recognizing thoughts that contribute to specific feelings and actions, thereby providing an opportunity for new adaptive learning. Importantly, the skills acquired during treatment extend beyond the clinical setting, empowering patients to implement positive changes in their lives outside the therapeutic context. [239] Specifically designed to address

thoughts and behaviors contributing to psychological deterioration, CBT plays a crucial role in alleviating symptoms commonly experienced by patients with cancer, including anxiety, depression, hopelessness, pain, and fatigue.[240-242] The chosen intervention for this specific study adopts CBT techniques to reduce BI concerns and hopelessness while promoting adaptive emotional regulation strategies. Recognized as the gold standard for addressing distress related to BI and hopelessness in cancer patients, this intervention incorporates psychoeducational elements to augment participants' understanding of psychosocial factors in treatment progress. Essential components include homework assignments, positive affirmations, and strength exploration worksheets, contributing to patient engagement and empowerment.

The effectiveness of CBT in improving the BI concern of patients with BC is highlighted through various studies, emphasizing the impact of cognitive methods in addressing mental distortions and beliefs about BI. [243-245] Faraji et al., in 2015 [246] investigated the impact of cognitive-behavioral group therapy on alleviating BI concerns in 40 BC patients. The experimental group, undergoing an eight-session intervention, exhibited a significant reduction in BI concerns compared to the control group. Additionally, CBT is recognized for its positive effects on posttreatment pain in BC patients, emphasizing its role in improving mental health and overall well-being. [248-251] The positive effects extend to addressing sexual issues, with CBT based intervention demonstrating high efficiency in enhancing sexual function, satisfaction, and relationships for women with BC. Studies suggest that CBT can decrease hopelessness in BC patients by reducing anxiety, depressive symptoms, and improving sleep and quality of life. [241]

Through targeted interventions, CBT provides a therapeutic avenue for patients to challenge negative perceptions related to BI, instil hope in the face of adversity, and develop skills to regulate their emotions effectively. The personalized nature of CBT allows for tailored strategies that resonate

with the unique experiences of each patient, fostering a sense of agency and control over their emotional landscape.

Moreover, as patients grapple with the emotional toll of BC, integrating CBT into their care not only targets specific concerns but also contributes to an overall improvement in their quality of life. The empowerment derived from CBT extends beyond the therapeutic setting, influencing how individuals approach challenges and uncertainties, fostering resilience, and bolstering a positive outlook on the journey ahead.

In advocating for the incorporation of CBT, is the endorsement of a holistic and patient-centred approach to BC care-one that not only addresses the physical aspects of the disease but acknowledges and actively targets the emotional and psychological dimensions. By reducing BI disturbances, mitigating hopelessness, and enhancing emotional regulation, CBT becomes a beacon of hope, guiding patients towards a path of healing, self-discovery, and renewed strength as they navigate the complexities of a BC diagnosis.

AIMS AND OBJECTIVES

1. To study the pre- and post-effect of Cognitive behavioural therapy (CBT) on body image disturbance in patients with breast cancer.
2. To study the pre- and post-effect of Cognitive behavioural therapy (CBT) on emotional regulation in patients with breast cancer.
3. To study the pre-and post-effect of Cognitive behavioural therapy (CBT) on hopelessness in patients with breast cancer.

REVIEW OF LITERATURE

Cancer, characterized by the unchecked growth of abnormal cells that can invade surrounding tissues or spread to other areas of the body, ranks as the second most common cause of death in India, responsible for 63% of all mortality.[13] The anticipated cancer burden for India in 2021 was estimated at 26.7 million cases, with projections suggesting an increase to 29.8 million by 2025. Among these, Breast Cancer (BC) is the most frequently diagnosed cancer in women and is particularly prevalent in India. Notably, the average age of BC diagnosis in Indian women is between 30 to 50 years [5], about a decade younger than their counterparts in developed countries. This younger age of onset means that BC is more common among women of childbearing age in India, potentially leading to greater psychological challenges due to the disease.

BODY IMAGE

Margolis, Goodman, Rubin, and Pajac (1989) [252] conducted a comprehensive assessment of 52 women one year after BC surgery, along with 18 women who had prophylactic surgery. The researchers employed a questionnaire specifically designed to explore the emotional aspects of the decision-making process for surgery. This measure covered a range of factors, including body image, feelings of deformity and mutilation, concerns about femininity, emotional readiness for mastectomy, sexual desirability, and fears related to death and breast loss, motivations for surgery, history of psychological trauma, emotional coping mechanisms, frequency and enjoyment of coitus, psychiatric diagnosis, and retrospective treatment preferences. Findings indicated that women who had mastectomies experienced higher levels of depression and transient suicidal thoughts post-surgery than those who chose lumpectomies. The study also highlighted the significance of concerns related to body image disturbance, feeling deformed, and mutilation in influencing the choice of treatment among women with BC. This research suggests that anticipated negative effects on body image,

potential disfigurement, and expected loss of femininity play crucial roles in a woman's decision-making regarding lumpectomy versus mastectomy.

Ganz and colleagues (1998) [193] conducted a study, which involved 864 BC survivors (BCS), an extensive exploration into the health-related quality of life (HRQL), partner relationships, sexual functioning, and body image concerns of BCS was undertaken, considering factors such as age, menopausal status, and type of cancer treatment. The findings uncovered a prevalent issue of dissatisfaction with body appearance, affecting approximately two-thirds of the women surveyed. Interestingly, marital or partner adjustment among BCS mirrored that of healthy individuals, and their sexual functioning resembled that of healthy, postmenopausal women of similar age. However, the study also revealed that BCS reported higher rates of physical symptoms, including joint pains, headaches, and hot flashes, in comparison to their healthy counterparts. Notably, sexual dysfunction was more common in women who had undergone chemotherapy, regardless of age, and in younger women who were no longer menstruating. These nuanced results underscore the multifaceted impact of BC and its treatments on various aspects of survivors' lives, emphasizing the need for tailored support and interventions to address their unique challenges.

Blameyet. Al (1999) [253] conducted a research involving 254 participants who had undergone postlumpectomy follow-up exams with the aim of delving into the relationship between the cosmetic appearance of the breast after breast conservation surgery and the psychological well-being of women. During the study, these women took photographs of their bare breasts, which were then assessed by a panel of six raters using a scale from 0 to 10, where higher scores denoted a better cosmetic appearance. The results revealed varying cosmetic ratings, with 61 patients rated as excellent, 123 as good, 60 as fair, and 10 as poor. Importantly, the study

found a significant correlation between the cosmetic outcome and both depression and body image. Specifically, women with more favorable cosmetic results reported better psychological well-being, whereas those with less satisfactory outcomes experienced higher levels of depression and negative body image. These findings underscore the profound impact that the physical appearance of a woman's breast post-surgery can have on her emotional state and self-perception, highlighting the importance of addressing cosmetic concerns in BC treatment to support the overall well-being of patients.

Kenny, Shiell, Hall, and Boyages' (2000) [254] comprehensive study delved into the nuanced interplay of psychological and physical effects resulting from BC treatment in a diverse cohort of 397 women ranging from 25 to 81 years old. The research uncovered a noteworthy pattern concerning the influence of age and marital status on women's body image in the aftermath of BC treatment. Intriguingly, the findings indicated that a combination of youth, marital status, and the experience of mastectomy had a compounding impact on these women's perceptions of their own bodies. This amalgamation contributed to heightened levels of distress and dissatisfaction with physical appearance among the studied individuals. The study sheds light on the complex interrelationships between demographic factors and the psychological repercussions of BC treatment, emphasizing the need for a holistic understanding when addressing the well-being of women undergoing such experiences.

Contant et al. (2004) [255] gathered data from 139 women who underwent immediate breast reconstruction following mastectomy, with 68 having cancer treatment and 71 opting for prophylactic mastectomies. The participants completed a comprehensive questionnaire divided into five sections covering demographics, advantages of immediate reconstruction, satisfaction with the procedure, information received, and an exploration of

quality of life, body image, and sexual functioning. The study also included a scale measuring satisfaction with the cosmetic results of the reconstructed breasts. Body image was assessed using a six-item measure, which included questions addressing aspects like comfort with nudity, difficulty looking at oneself during changing, and discomfort in touching the reconstructed breast. The findings revealed a significant correlation between body image and both improved cosmetic results and depression among the 68 women who underwent cancer treatment. This study underscores the interconnection between body image, psychological well-being, and the perceived cosmetic outcomes of immediate breast reconstruction, highlighting the importance of addressing these factors in the comprehensive care of women undergoing such procedures.

Hesketh et al., (2004) [194] carried out a metanalysis to investigate CIA, its psychosocial impact, and therapeutic approaches. According to them, the impact of hair loss can be enormous. For some women, hair loss can have more of an impact than a mastectomy, others are so distressed at facing the prospect of losing their hair that they may choose fewer effective therapies or opt for no treatment at all. Hair loss can also lead to using anxiety, depression, negative body image, lowered self-esteem, and a reduced sense of well-being. According to this review, when supporting patients with CIA, healthcare providers should use an individualized approach. Education, support groups, and self-care strategies were seen as important components of any management approach.

Avis and colleagues (2005) [256] conducted a study on 202 women diagnosed with stage I to III BC at age 50 or younger who were surveyed 4 to 42 months post-diagnosis. The research highlighted prevalent issues, with over 70% reporting general aches, dissatisfaction with appearance, and age-related symptoms like hot flashes and pain during sexual intercourse. The participants' global quality of life was significantly lower

than their nonpatient counterparts, underscoring the profound impact of BC on their well-being. Sociodemographic and medical factors had limited influence on quality of life; instead, the study found that missed days of work, relationship problems, sexual difficulties, body image concerns, and coping strategies significantly affected various quality of life domains. These findings emphasize the need for holistic support addressing physical symptoms, psychosocial challenges, and coping mechanisms for younger BC survivors.

Boehmke and Dickerson (2005) [257] carried out a qualitative interview based research on 20 women who had undergone treatment for BC to explore the emerging themes related to their experiences of distress, specifically focusing on the impact of hair loss on their body image. The research findings revealed a diverse range of responses among the participants in coping with alopecia. Some women viewed their baldness as a symbol of pride and courage, suggesting a positive and empowering perspective towards their hair loss. These individuals seemed to embrace their baldness as a visible testament to their strength and resilience in the face of cancer and its treatments. However, contrasting these positive responses, the study also highlighted a significant portion of women who experienced hair loss as a traumatic event leading to a profound sense of loss of identity. For these individuals, the absence of hair had a negative impact on their body image, causing distress and emotional turmoil. The varying responses observed in the participants emphasize the importance of considering individual coping mechanisms and emotional states when addressing the challenges related to body image and hair loss in the context of cancer treatment.

Fobair et al.'s (2006) [96] carried out a study involving 549 women aged 22-50 diagnosed with BC, approximately one-third experienced body image issues, with 17% facing persistent challenges. Among sexually active

participants, 24% reported definite or serious sexual problems, while 28% reported minor issues in multiple areas. Factors contributing to body image concerns included mastectomy with potential reconstruction, chemotherapy-induced hair loss, worries about weight changes, poorer mental health, lower self-esteem, and partners struggling to understand emotional experiences. Sexual problems were associated with vaginal dryness, diminished mental health, marital status, partners' difficulty in understanding feelings, heightened body image issues, and significant ethnic differences in reported severity. These findings highlight the complex interplay of physical, psychological, and relational factors in the experiences of young women diagnosed with BC, emphasizing the need for comprehensive support addressing these multifaceted challenges.

Donald H. Baucoma et.al (2006) [258] in their review revealed that, following cancer treatment, younger women often experienced a lower quality of life compared to their older counterparts. This decrease in quality of life was partially due to the effects of medical procedures, particularly surgeries and breast removal, which often intensified negative feelings about body image, especially in younger patients. Additionally, systemic treatments were found to induce early menopause, causing symptoms such as hot flashes, decreased sexual desire, and vaginal dryness, which further compounded the difficulties faced by young women, leading to more concerns about body image and psychological distress.

Helms et al. (2008) [259] in their review paper explored the intricate matter of body image among 48 women with BC. According to them, diagnosis and treatment of BC profoundly impact women both physically and psychologically. While facing a life-threatening illness and undergoing painful treatments are obvious stressors, the authors highlight the often overlooked aspect of body image concerns. 89% of women report concerns about their weight and appearance, which are deeply ingrained

and can exacerbate psychological distress during BC treatment. Their article provided a comprehensive summary of existing literature examining body image issues and their impact on psychological adjustment in women with BC.

Przezdziecki and colleagues (2012) [260] conducted a study that aimed to delve into the psychological well-being of BC survivors. The study included 279 women who had finished their active cancer treatments and were part of a national BC consumer network. These participants filled out an online questionnaire evaluating multiple aspects such as body image, self-compassion, psychological distress (measured by the Depression, Anxiety, and Stress Scale), perceived normative pressure, and comfort with one's weight. The findings significantly highlighted the connection between body image issues and psychological distress among these BC survivors. Notably, the research found that disturbances in body image and reduced self-compassion were linked to greater psychological distress. Additionally, the study used a bootstrapping method with multiple mediators, revealing that self-compassion served as a mediating factor in the relationship between body image issues and distress. It was found that women with elevated self-compassion levels were likely shielded from the adverse effects of body image disturbances, resulting in reduced psychological distress.

Choi et al. (2014) [195] carried out a study to assess the effects of CIA (chemotherapy-induced alopecia) distress on body image, psychosocial well-being, and depression among breast cancer (BC) patients. The research involved 168 BC patients, with an average age of 48.4 years (SD = 8.4), and 55.3% of these patients reported experiencing significant distress from hair loss. According to the fully adjusted models, patients in the high-distress category were more likely to suffer from a negative body image compared to those in the low-distress category. Furthermore, those

in the distressed group reported poorer emotional, role, and social functioning. The study also found that depression was more prevalent in the high-distress group than in the low-distress group (19.6% versus 14.8%; $p < 0.001$).

Paterson and colleagues (2016) [119] conducted a systematic review focused on body image among younger breast cancer (BC) patients, finding that a positive body image is associated with better coping mechanisms for cancer and its treatments. The research emphasized that superior mental health and quality of life lead to more favorable outcomes from treatment. Age and type of treatment were pinpointed as key factors affecting body image, with a negative body image linked to greater physical and psychological distress, difficulties with sexual intimacy, and strained partner relationships among younger women. These findings highlight the need to address body image issues to improve the overall well-being of younger BC patients.

Agata Kołodziejczyk and Tomasz Pawłowski (2019) [126], in their review paper aimed to acquaint readers with the effects of body image changes in BC patients. Their study explored how oncological treatments, such as surgery, chemotherapy, radiotherapy, and hormone therapy, negatively influenced how patients perceived their bodies. The research delved into factors like pre-existing personality traits, socioeconomic status, age, and the sense of control during treatment, which affected individuals differently. It also examined the impact of negative body image on various aspects of patients' lives, including quality of life, societal functioning, return to work, and sexuality.

Vani et al., (2021) [261] carried out a comprehensive analysis of body image in adolescents and young adults diagnosed with cancer. Studies explored descriptive, psychological, physical, coping, and social factors of adults

diagnosed with cancer. Overall, body image findings were consistent with previous research, with negative body image being associated with or described in relation to negative factors (e.g., depression, pain, avoidance of social activities) and positive body image associated with or described in relation to positive factors (e.g., quality of life, sex life satisfaction, physical activity). Notably, significant body image improvements were demonstrated for interventions and programs that varied in delivery length and method.

Brederecke et al. (2021) [262] revealed compelling insights into the nuanced dynamics of body image among cancer patients involving 531 cancer patients. It was discerned that, irrespective of gender, cancer patients exhibited diminished body image satisfaction compared to the general population. In men, positive body self-acceptance (SA) was associated with higher relationship satisfaction and lower cancer-specific distress, while factors such as younger age and lower anxiety correlated with better perceived partner-acceptance of one's body (PA). Interestingly, women with higher education and lower anxiety displayed more positive SA. Notably, patients diagnosed with breast/gynecological cancer reported superior SA than those with visceral cancers. The study debunked the notion that time since diagnosis significantly affected body image, emphasizing the enduring impact of cancer on self-perception.

HOPELESSNESS

Tatsuo Akechi et al. (1998) [263] conducted a study focusing on understanding the mental adjustment of cancer patients, considering the widely acknowledged stress associated with a cancer diagnosis. The research aimed to explore the correlation between cancer patients' mental adjustment, their characteristics, and social support factors. The study involved 455 ambulatory cancer patients who completed the Mental Adjustment to Cancer (MAC) scale and underwent a structured interview

regarding their characteristics and social support. The findings from multiple regression analysis highlighted predictors of patients' mental adjustment. Factors such as size of household, performance status, support from physicians, and satisfaction with support were associated with patients' fighting spirit, while age, education, size of household, performance status, and satisfaction with support were linked to feelings of helplessness/hopelessness. This research contributes valuable insights into the multifaceted aspects influencing cancer patients' mental adjustment.

Watson et al. (1999) [264] explored the influence of psychological response on survival in early-stage BC, recognizing the potential impact of attitudes like a fighting spirit or feelings of helplessness and hopelessness towards the disease. The research included 578 women enrolled in a prospective survival study, measuring psychological response through scales such as the mental adjustment to cancer (MAC), Courtauld emotional control (CEC), and the hospital anxiety and depression (HAD) scale at 4-12 weeks and 12 months post-diagnosis. The cohort was followed for at least 5 years, utilizing Cox's proportional-hazards regression to determine hazard ratios for psychological response measures, adjusting for known clinical factors associated with survival. At the 5-year mark, 395 women were alive without relapse, 50 were alive with relapse, and 133 had died. The research showed that women with high depression scores on the HAD scale faced a significantly elevated risk of mortality within five years (hazard ratio 3.59 [95% CI 1.39-9.24]). Additionally, a heightened risk of relapse or death at 5 years was observed in women with high scores for helplessness and hopelessness on the MAC scale, compared to those with low scores (1.55 [1.07-2.25]). Interestingly, no significant associations were found for the "fighting spirit" category. These results underscore the potential impact of certain psychological responses on BC outcomes and highlight the need for comprehensive psychological support in the care of

individuals with BC.

Feten Fekih-Romdhane et al., (2002) [265] conducted a cross-sectional investigation for over 3-month period, involving 50 women who had undergone surgical treatment for BC. Sleep quality was evaluated on Pittsburgh Sleep Quality Index (PSQI), depression was evaluated using the Beck Depression Inventory (BDI-II), and hopelessness was measured with the Beck Hopelessness Scale (BHS). The participants, all of whom were screened using the Arab-language versions of these scales, revealed that 66% of BC patients were considered poor sleepers (PSQI scores >5), 30% had moderate to severe depression, and 24% exhibited a high level of hopelessness. The study found negative correlations between PSQI scores and both depression ($P < 0.001$) and hopelessness scores ($P < 0.001$). In multivariate analysis, habitation and hopelessness scores emerged as the main predictors of sleep quality. After controlling for demographic (age) and social (habitation) variables, hopelessness was identified as a significant contributor to sleep quality. The conclusion drawn from these findings is that hopelessness is positively associated with sleep disorders in women suffering from BC. As such, effective management of hopelessness is crucial to prevent depression, mitigate the risk of suicide, and enhance the overall quality of life for these patients.

Smith et al. (2003) [266] conducted research to explore how depression affects the quality of life in patients receiving palliative care. Palliative care aims to enhance the quality of life for both patients and their caregivers. The research hypothesized that illness severity, hopelessness, pain, anxiety, and depression are interconnected factors influencing health-related quality of life. The study, involving 68 patients with advanced cancer under palliative care, explored these associations. Results indicated that, after adjusting for pain and illness severity, hopelessness,

anxiety and depression were independently linked to global health status, emotional and cognitive functioning, and fatigue. Additionally, anxiety contributed significantly to social functioning, nausea, and vomiting. The study reinforced the understanding that pain, anxiety, and depression are interconnected with impaired quality of life, emphasizing the independent contributions of anxiety and depression across various dimensions. The findings underscore the need for longitudinal studies to discern the causal associations between pain and depression in palliative care settings.

Steven Greer (2008) [267] shared personal observations in his article titled "CBT for Emotional Distress of People with Cancer: Some Personal Observations." He notes the well-documented detrimental effect of a helpless coping response on the quality of life of cancer patients. This coping response is significantly associated with emotional distress and serves as an independent prognostic factor linked to an increased risk of disease recurrence and mortality. Greer underscores the necessity of developing specific strategies to empower patients to overcome feelings of helplessness. Moreover, recent research suggests that emotional distress in patients with advanced cancer may be influenced by low levels of positive affect. As positive psychological states such as fighting spirit and resilience are often overlooked, Greer advocates for further exploration in this area. In the absence of comprehensive studies on positive affect, he offers practical suggestions, based on his clinical experience, for inducing and fostering positive emotions in cancer patients.

İlknur Aydın Avci et al. (2009) [268] in his descriptive study aimed assessing the marital adjustment and hopelessness levels of women who underwent mastectomy due to BC. The research, conducted at Ondokuz Mayis University Medical Faculty's chemotherapy, radiotherapy, and surgical clinics, included a sample of 59 subjects. Data were collected using a descriptive questionnaire, the dyadic adjustment scale, and Beck's

hopelessness scale. Results indicated that 38.3% of women believed the operation would not impact their marriages, while 34% believed it would have a negative effect. The average hopelessness score for these women was 5.02+/-4.82, suggesting a moderate level of hopelessness. Marital adjustment, with a score of 102.79+/-24.68, was also assessed as average. Although no significant relationship was found between marital adjustment and hopelessness in the sample ($r=-0.021$, $p=0.875$), the study revealed that the perception of hopelessness before mastectomy significantly influenced marital adjustment ($p<0.05$). These findings underscore the complex interplay between hopelessness perceptions and marital adjustment in women who have undergone mastectomy, emphasizing the need for targeted support and intervention strategies in the psychosocial care of BC survivors.

Arslan et al. (2009) [269] conducted a study which focused on Turkish patients undergoing chemotherapy, the objective was to assess levels of depression and hopelessness to inform nursing interventions. The research involved 101 cancer patients receiving outpatient chemotherapy, and data on sociodemographic characteristics, Beck Hopelessness Scale, and Beck Depression Inventory scores were collected. The results clearly showed a strong positive relationship between depression and hopelessness, illustrating a significant connection between these two psychological conditions in cancer patients receiving chemotherapy.

Yasemin Yıldırım et al. (2009) [270] conducted a cross-sectional design was employed to investigate the hopelessness level and its association with depression, anxiety, and disease-related factors among Turkish cancer patients. The research included 136 patients hospitalized at Tulay Aktas Oncology Hospital of Ege University School of Medicine in Izmir, Turkey, recruited between December 2005 and March 2006. The mean hopelessness score was found to be 5.20+/-4.39. Significant differences in

hopelessness were observed between patients with metastasis and pain compared to those without ($p<0.05$). Furthermore, a significant correlation was identified between hopelessness and depression, as well as hopelessness and anxiety ($r=0.721$; $r=0.645$, respectively, $p<0.001$). Stepwise multiple regression analysis indicated that the independent predictors of hopelessness were depression score and the presence of metastasis ($F=55.133$; $p<0.001$). These findings suggest that hopelessness levels are higher among cancer patients experiencing pain and metastasis, and the severity of pain, anxiety, and depression is positively correlated with the level of hopelessness. This highlights the importance of addressing psychological factors in the comprehensive care of cancer patients.

Grassi et al. (2010) [271] addressed the scarcity of data on hopelessness in cancer patients in non-English-speaking countries by collecting information from Southern European countries. A total of 312 cancer patients participated, completing scales assessing hopelessness, depression, anxiety, cancer worry, coping strategies, and other psychosocial factors. Results showed hopelessness is not exclusively associated with depression but is related to various psychosocial factors, such as maladaptive coping. Regression analysis explained 42% of the variance in hopelessness, highlighting its complex nature. The study, involving patients from various centers, found no significant differences in hopelessness based on certain demographics or cancer-related variables. The findings underscore the need for a comprehensive understanding of hopelessness and its psychosocial correlates in cancer patients.

Andreu et al., (2012) [272] conducted a study on 102 BC survivors to identify the time evolution and prevalence of distress at specific times through diagnosis and treatment of the disease: preliminary diagnosis, surgery, definitive diagnosis and chemotherapy. Additionally, the study

aimed to examine the role of demographic, medical and psychosocial factors on distress. Patterns of ES and specific coping responses like helplessness/hopelessness, anxious preoccupation, cognitive avoidance and fatalism were found to be positively related to distress, whereas fighting spirit and perceived social support showed a protective role. Moreover, helplessness/hopelessness and anxious preoccupation jointly predicted 75% of cases and 98% non-cases of distress.

Sachs et al. (2013) [273] explored the intricate relationship between hope and hopelessness in terminally ill cancer patients and identified factors that influence both constructs, impacting the quality of life for these patients. In this research, semistructured interviews were conducted with 22 terminally ill cancer patients, and the transcripts were analyzed using thematic content analysis. The findings revealed that hope and hopelessness are distinct yet often co-occurring constructs, interacting dialectically. The relationship between hope and hopelessness frequently hinged on acceptance, perceived as diametrically opposed to hopelessness and conducive to redirecting hope toward new goals. Positive interpersonal relationships were identified as enhancers of hope, while uncontrolled physical pain increased vulnerability to hopelessness. The study involved 30 English-speaking adult patients with stage IV cancer and a life expectancy of less than one year. The research aimed to develop a measure of hopelessness for patients with advanced or terminal disease, and participants were asked to rate their levels of hope and hopelessness during the interviews, providing valuable insights into the psychological experiences of terminally ill cancer patients.

Şahin ZA, Tan M, and Polat H (2013) [274] conducted a study aiming to assess the relationships between various demographic variables and hopelessness and depression in Turkish cancer patients nearing the end of life. This descriptive survey with repeated measures was conducted at a

university hospital in Erzurum, Turkey, and included 216 patients undergoing palliative treatment. Data were collected using questionnaires, including a demographic questionnaire, Beck Hopelessness Scale (BHS), and Beck Depression Scale (BDS). The results revealed that hopelessness scores were significantly higher in female, illiterate, married, and rural-dwelling cancer patients. Moreover, both hopelessness and depression scores were significantly elevated in patients with longer disease duration, those undergoing radiotherapy, and those with metastatic disease. The study sheds light on the intricate combination of physical, psychological, and cognitive hurdles that cancer patients face as they approach the end of life. It suggests that nurses are vital in recognizing patients in distress through quick screening assessments, providing psychosocial support, and connecting them with necessary support services. Data collection and analysis were performed using SPSS for Windows version 13.0. The statistical methods used included analysis of variance (ANOVA) to assess the effects of various demographic and disease-related factors on levels of hopelessness and depression. Furthermore, the study utilized descriptive statistics to characterize the sample, and both parametric (Student's t-test) and non-parametric tests (Mann-Whitney U test) to compare differences across categorical demographic and medical variables. These insights enhance our comprehension of the psychosocial dimensions of cancer care near the end of life and underscore the need for comprehensive care that addresses the diverse needs of these patients.

Heidari and Mansureh Ghodusi (2015) [275] carried out research to examine the link between body appreciation, hope, and mental health in women with breast cancer post-mastectomy. This descriptive study included 100 breast cancer patients who had undergone mastectomy and were receiving care at the Sayed Al-Shohada Medical Center in Isfahan, Iran. The researchers gathered data using the Body Esteem Scale (BES),

Herth Hope Index (HHI), and Symptom Checklist 25 (SCL-25) mental health questionnaire. The study found that the typical participants were between 50 to 70 years old, married, and had completed high school education. The findings showed that these patients generally exhibited low body esteem, with the highest scores in the physical attractiveness subscale and the lowest in comparisons to a healthy body. There was a notably strong link between body esteem and hope ($P < 0.001$, $rs = 0.583$), and the study also highlighted significant correlations between body esteem, hope, and overall mental health. Regarding hope, 27% of the participants reported low levels, 49% moderate, and 24% high levels of hope. Concerning mental health, 69 of the patients were suspected of having a mental disorder, particularly depressive disorders. The study's findings emphasized the interconnectedness of body appreciation, hope, and mental health in women coping with BC after mastectomy.

Yijun Bao et al. (2016) [141] in their cross-sectional study on patients with central nervous system (CNS) tumors in China, uncovered significant findings regarding the prevalence and positive psychological variables associated with anxiety and depression. Among the 222 participants, they found that 42.8% experienced anxiety, while 32.4% reported depression. Their analysis revealed that both hope and optimism were negatively correlated with anxiety and depression, collectively explaining 21.4% and 32.4% of the variance, respectively. These results underscore the importance of addressing psychological distress among CNS tumor patients and highlight the potential benefits of interventions aimed at fostering hope and optimism tailored to individual patient needs.

Hossein et al., (2018) [276] investigated the role of hopelessness and perceived social support in Iranian patients with cancer. The study sample comprised 100 patients with cancer presenting to the Education and Treatment Center of Valiasr in Zanjan, Iran, selected through convenience

sampling. Data were collected using a demographic questionnaire, the Beck Hopelessness Scale, and the Social Support from Family and Friends Scale. The results indicated that among the 98 study patients, 52 (53.1%) were female, and the majority were male. Lung cancer was the most prevalent type, accounting for 25.5% of cases. The mean hopelessness score was found to be 5.93 ± 4.71. The study suggested that Iranian patients with cancer experienced relatively mild levels of hopelessness, as indicated by the mean hopelessness score falling within the range of mild hopelessness. (The mean hopelessness score was 5.93 ± 4.71. For this measure, scores of 0–3 indicate a minimal sense of hopelessness, 4–8 mild hopelessness, 9–14 moderate hopelessness, and scores higher than 14 indicate a severe degree of hopelessness.) These findings provide insights into the psychological aspects of cancer patients, emphasizing the importance of assessing and addressing hopelessness and social support in the context of cancer care.

Ottlingam Somasundaram Ravindran et al., (2019) [277] conducted a study that compared perceived stress, coping mechanisms, quality of life (QOL), and feelings of hopelessness between current cancer patients and cancer survivors. This cross-sectional research was carried out in the Medical Oncology Department of a multi-specialty tertiary care teaching hospital from February to May 2018. Its purpose was to investigate how perceived stress is related to coping, QOL, and hopelessness in both groups. The study utilized a purposive sampling method to include 30 participants—15 ongoing cancer patients and 15 cancer survivors—ranging in age from 30 to 60 years. Each group was evaluated using tools such as the Perceived Stress Scale, Coping Checklist, Quality of Life-Cancer, and Beck Hopelessness Scale. The findings indicated that cancer patients were more likely to use maladaptive coping strategies, resulting in psychological distress and a lower QOL when compared to cancer survivors. Furthermore, a positive correlation was found between hopelessness and

QOL among the cancer survivors. These results highlight the need to understand the distinct challenges faced by both cancer patients and survivors to better address their coping strategies, psychological health, and overall quality of life.

Wu et al., (2021) [206] examined the body image and hopelessness status of early-stage BC survivors who had undergone a one-time dressing change after surgery and were ready to be discharged from a hospital in China. This cross-sectional study included 211 women with BC, and data analysis involved Spearman's correlation and structural equation modeling. Participants in the 35–45 age group and those who underwent bilateral mastectomy demonstrated higher scores for hopelessness. Married participants exhibited lower scores for the feelings about the future subscale compared to other subscales. Body image was found to be significantly and positively associated with, and had a positive effect on, hopelessness. Women with a more positive appraisal of their body image tended to report lower levels of hopelessness. Notably, most participants had been diagnosed with BC for less than 6 months, and the study emphasized the importance of evaluating distress levels after mastectomy to identify individuals requiring early psychosocial intervention. Statistical analyses were performed using SPSS 22.0, and the study used Kruskal–Wallis and Mann–Whitney tests to compare differences in hopelessness by participants' socio-demographic characteristics. Additionally, the study utilized Spearman's correlation analysis and structural equation modeling to examine the linear relationship between participants' body image and their levels of hopelessness, as well as to assess the influence of body image on hopelessness while adjusting for socio-demographic variables. The study's findings contribute valuable insights for healthcare providers in understanding and addressing the psychological well-being of early-stage BC survivors.

EMOTIONAL REGULATION

Schlatter & Cameron, (2010) [279] investigated how tendencies toward Expressive Suppression (ES) could predict symptoms, mood, and coping appraisals during chemotherapy for cancer. Forty participants were assessed for anxiety suppression, anger suppression, depression suppression, and total ES. Daily reports from these participants included their experiences of physical symptoms, mood, and coping efficacy throughout their treatment. A Mixed model analyses indicated that ES generally predicted lower reports of vague and commonly known symptoms. However, ES, and particularly anger suppression, were associated with higher reports of symptoms related to immune function and cardiovascular arousal, along with poorer coping appraisals. The three types of suppression showed distinct patterns in their relationships with symptoms, mood, and coping appraisals, indicating that anxiety suppression, anger suppression, and depression suppression each have partially independent effects on symptomatic and mood processes.

Andreu et al. (2012) [272] conducted a study on 102 BC survivors were examined to understand the time evolution and prevalence of distress during specific phases of diagnosis and treatment: preliminary diagnosis, surgery, definitive diagnosis, and chemotherapy. The research also aimed to explore the influence of demographic, medical, and psychosocial factors on distress. The study identified patterns of ES and specific coping responses, such as helplessness/hopelessness, anxious preoccupation, cognitive avoidance, and fatalism, which were positively associated with distress. Conversely, fighting spirit and perceived social support played a protective role. Notably, helplessness/hopelessness and anxious preoccupation jointly predicted 75% of distress cases and 98% of non-distress cases.

Li et al (2015) [280] focused on examining the rate of depressive symptoms

among Chinese women who were recently diagnosed with early-stage breast cancer and the link between Expressive Suppression (ES) and these depressive symptoms. Utilizing tools such as the Center for Epidemiological Studies Depression Scale (CES-D), Beck Anxiety Inventory (BAI), and the Chinese version of the Courtauld Emotional Control Scale (CECS), they discovered that a significant portion of the participants experienced clinical or severe depression. The study also noted higher ES scores in these patients compared to healthy counterparts, with anger suppression particularly influencing the severity of depressive symptoms. These findings emphasize the commonality of depression among Chinese women with early-stage breast cancer and underscore a strong connection between ES, especially anger suppression, and depression levels in this group.

Chao Xu Peh et al. (2016) [281] undertook a study with 144 adult cancer patients to investigate the impact of emotional regulation (ER) strategies, such as reappraisal and suppression, on psychological outcomes including anxiety and depression among those newly diagnosed with cancer. Participants filled out various questionnaires including the Emotional Regulation Questionnaire, Adult Hope Scale, and the Hospital Anxiety and Depression Scale. The data showed that 39.6% of participants experienced anxiety and 25.0% faced depression. The study observed that greater use of reappraisal and higher hope levels were linked to reduced anxiety and depression, while increased suppression was associated with higher anxiety and depression levels. The researchers suggested a mediation model where hope mediated the effects of reappraisal on anxiety and depression, highlighting the critical role healthcare providers play in addressing the emotional needs of cancer patients.

Guimond et al. (2018) [176] explored both subjective and objective

indicators of Emotional Regulation (ER) and their correlation with psychological symptoms in women receiving radiation therapy for non-metastatic breast cancer. The study utilized self-report scales and high-frequency heart rate variability (HF-HRV) measurements. It was found that higher levels of experiential avoidance and ES correlated with increased psychological symptoms, except for pain, both before and after the radiotherapy sessions. Moreover, both suppression and reappraisal were slightly linked to a decrease in cancer recurrence fear and an increase in depression and fatigue throughout the treatment. Interestingly, the HF-HRV measurements did not correlate with any symptoms, suggesting that maladaptive subjective ER strategies might serve as a cross-diagnostic mechanism affecting various psychological symptoms related to cancer.

Qian Lü et al. (2018) [178] addressed the significance of Emotional Regulation strategies in the adjustment of cancer survivors, particularly focusing on Chinese American BC survivors. The research investigates the longitudinal impact of ES, ambivalence over emotional expression, and CR on the quality of life among this population. ES, defined as actively inhibiting emotional expression, has been identified as maladaptive, but its implications in the context of Chinese culture, which encourages emotion suppression for interpersonal harmony, were explored. The study, involving 103 participants, utilized baseline and follow-up questionnaires. The findings revealed that baseline ambivalence over emotional expression predicted lower follow-up quality of life independently of ES. Additionally, CR was found to moderate the relationship between ES and follow-up quality of life. This suggests that Chinese American BC survivors who can regulate emotions through CR may experience less detrimental effects of ES. The study underscores the importance of cultural considerations in tailoring interventions for this specific population.

Baziliansky and Cohen (2020) [175] in their systematic review and meta-analysis, aimed to assess the relationships between various Emotional Regulation patterns (repression, experiential avoidance, suppression, and CR) and psychological distress in cancer survivors. Fifteen studies were included in the systematic review, with seven focusing on suppression in the subsequent meta-analysis. The review revealed substantial variability in the associations between Emotional Regulation patterns and psychological distress. The meta-analysis, particularly concerning suppression, indicated a significant relationship with psychological distress. Subgroup analyses did not show moderation effects of time since diagnosis or study quality, but differences were observed between correlative studies and those controlling for confounders. Despite inconsistencies and potential publication bias, the study suggests that suppression is linked to increased psychological distress in cancer survivors, emphasizing the need for further well-designed studies with larger samples to better understand these associations.

Teng et al. (2021) [282] investigated the relationship between post-traumatic stress, Emotional Regulation strategies, and negative emotions in Chinese women with BC. The study, employing a cross-sectional questionnaire with 214 participants, utilized the Impact of Event Scale-Revised, Hospital Anxiety and Depression Scale, and Emotional Regulation Questionnaire. Findings revealed that patients with low post-traumatic stress tended to use CR strategies, whereas those with high post-traumatic stress favored ES. CR was negatively associated with negative emotions, while ES showed a positive association. The study suggests that CR may mitigate the impact of post-traumatic stress on negative emotions in BC patients. The implications highlight the importance of CR training for patients with high negative emotions and severe post-traumatic stress, especially in the context of Chinese cultural considerations.

Su et al. (2022) [241] conducted a study focusing on newly diagnosed lung cancer patients, the researchers aimed to explore the relationship between cancer fear, ER, and emotional distress. Using a cross-sectional, correlation research design, 117 participants completed self-report questionnaires, including the Cancer Fear Scale, Emotional Regulation Questionnaire, and Hospital Anxiety and Depression Scale. The results revealed that nearly 70% of newly diagnosed lung cancer patients experienced high levels of cancer fear, with 56.4% reporting depression and 45.3% reporting anxiety. Depression was positively associated with cancer fear and ES, but negatively associated with CR. Anxiety showed positive associations with cancer fear and negative associations with CR. Cancer fear and CR were identified as significant explanatory factors, explaining 25.2% of the variance in anxiety, while cancer fear, ES, and CR explained 16.7% of the variance in depression. The study highlighted the importance of clinicians being attentive to patients' cancer fears and early ER strategies to prevent emotional distress.

EFFECT OF COGNITIVE BEHAVIOURAL THERAPY ON BODY IMAGE DISTURBANCE, EMOTIONAL REGULATION, AND HOPELESSNESS

Greer et al., (1992) [283] carried out a study to compare the effectiveness of adjuvant psychological therapy (APT), specifically CBT, to treatment as usual in 156 patients with newly diagnosed and recurring cancers. Measures of psychological distress were evaluated at baseline, eight weeks, and four months. Of the enrolled patients, 156 (90%) completed the eight-week trial, with follow-up data obtained for 137 patients (79%) at four months. Results revealed significant improvements in various psychological measures, including higher scores on fighting spirit and lower scores on helplessness and anxiety in the therapy group compared to controls at eight weeks. These improvements persisted to some extent

at the four-month follow-up. Specifically, the proportion of severely anxious patients decreased from 46% at baseline to 20% at eight weeks and remained at 20% at four months in the therapy group, compared to 48% to 41% at eight weeks and 43% at four months in the control group. Additionally, the proportion of patients with depression decreased from 40% at baseline to 13% at eight weeks and 18% at four months in the therapy group, compared to 30%, 29%, and 23%, respectively, in the control group. This study underscores the significant benefits of adjuvant psychological therapy in alleviating psychological distress among cancer patients, with some effects persisting over time.

Edelman, Bell, and Kidman (1999) [249] conducted a study 92 patients diagnosed with metastatic BC were randomly assigned to either receive a group Cognitive Behaviour Therapy (CBT) intervention or no therapy as part of standard oncological care. The therapy group attended eight weekly sessions of group CBT, followed by a family night, and three monthly sessions, while both groups received standard oncological care. Patients completed assessments using the 'Profile of Mood States' (POMS) and the Coopersmith Self-esteem Inventory (CSI) before and after therapy, as well as at 3 and 6-month follow-up periods. Results showed that immediately, therapy participants exhibited significant improvements in depression ($p=0.008$), total mood disturbance ($p=0.036$), and self-esteem ($p=0.048$) compared to the control group, with a tendency towards higher vigour ($p=0.067$). However, these improvements were not sustained at the 3 or 6-month follow-up assessments. Analysis of baseline scores revealed no significant differences between the treatment groups.

Narváez et al. (2008) [284] conducted a study on BC patients aged 30.0–60.0 years to assess the effects of group CBT. The study included 19 participants in both the control and intervention groups. All participants had undergone mastectomy at least three years prior and were receiving

only hormonal therapy during the research period. The intervention group received nine weekly sessions of group CBT, involving psychoeducation, cognitive distortions identification and modification, muscle relaxation, abdominal breathing, and body exposure exercises. The outcomes measured included body image using the Body Image Scale (BIS), depression assessed with the Beck Depression Inventory (BDI), and anxiety evaluated using the State-Trait Anxiety Inventory (STAI). Post-intervention results showed no negative perceived body image and reductions in depression and anxiety levels, with effect sizes ranging from Cohen's d = -0.22 to -0.26.

Fadaei et al. (2011) [285] explored how cognitive behavioral counseling could influence body image in Iranian women diagnosed with primary BC. Seventy-two patients diagnosed with BC and surgically treated were enrolled in Isfahan, Iran, and divided into intervention (n = 32) and control (n = 40) groups. The body image scale (BIS) was used to assess body image, consisting of 10 items. The intervention group received consultation based on Ellis rational emotive behavior therapy (REBT) method for six sessions over three weeks, while the control group received no consultation. The body image score significantly decreased in the intervention group (9.03 ± 6.11) compared to the control group (17.18 ± 5.27) after the intervention ($t = -6.07$, $P < 0.001$), indicating positive effects of cognitive behavioral counseling. These findings underscore the importance of offering consultation to BC patients, as body image influences treatment decisions and overall well-being.

Stirling Moorey et al. (2012) [286] in their collaborative work on the second edition of the "Oxford Guide to CBT for People with Cancer" in 2012, aimed to update the text in light of recent research and clinical developments of using CBT for people with cancer, following a structured approach, maintaining a two-part format. Part One focused on the clinical,

theoretical, and empirical aspects of the psychology of cancer. It began with an exploration of the experiences of people with cancer and their emotional reactions to the disease. Chapter 2 contextualized these reactions within a cognitive-behavioral framework, presenting an updated cognitive model of adjustment to cancer. Chapters 3 and 4 reviewed the evidence for the effectiveness of cognitive-behavioral interventions in cancer patients and their impact on the disease process. Part Two delved into the authors' version of CBT for people with cancer, termed adjuvant psychological therapy. Chapter 5 provided an overview of adjuvant psychological therapy, followed by an examination of the structure and nature of the therapeutic relationship in Chapter 6. Chapters 7, 8, and 9 detailed the basic emotional, behavioral, and cognitive techniques used in therapy, with updates based on recent insights. Further chapters addressed specific issues such as anxiety, depression, insomnia, fatigue, pain, nausea, anger, underlying beliefs, partner involvement, advanced disease, terminal illness, and grief reactions. The book concluded with a chapter on the application of cognitive-behavioral techniques to group therapy. This structured and comprehensive guide aimed to provide practical insights and strategies for professionals involved in the clinical care of cancer patients, including nurses, oncologists, psychologists, psychiatrists, and other mental health professionals working in medical settings.

Ahmad Izadi-Ajirlo et al. (2013) [287] carried out a study to assess the effectiveness of a cognitive behavioral group intervention in improving body image and self-esteem among BC patients who had undergone mastectomy. The study involved 23 patients between the ages of 30 and 60, who were treated at Imam Hossein Hospital and randomly divided into either a case group (n=10) or a control group (n=13). The intervention included 12 sessions spread over six weeks, with each session lasting 90 minutes. Both groups completed the Body Image and Relationships Scale

and the Pope Self-Esteem Questionnaire before and after the intervention. Analysis of covariance and ANOVA were used to analyze the data. The results, published in the journal, demonstrated a significant improvement in body image and self-esteem scores in the case group compared to the control group ($P<0.01$).

Faraji et al. (2015) [246] conducted a study to evaluate the effectiveness of cognitive-behavioral group therapy in reducing body image concerns among patients with BC. Using a quasi-experimental design with pretest-posttest and control group, 40 patients from Imam Hossein Hospital of Tehran were selected via convenience sampling and divided into experimental and control groups. Both groups completed demographic and body image concern questionnaires before and after the intervention. The experimental group received eight sessions of cognitive-behavioral group therapy, while the control group received no intervention. Results revealed a significant reduction in body image concern among patients who received cognitive-behavioral group therapy ($p < 0.001$). The study concludes that cognitive-behavioral group therapy is an effective approach for addressing body image concerns in patients with BC due to its high efficacy, affordability, and patient acceptability.

Zhou et al. (2017) [239] conducted a study in China involving BC patients in a 2-arms RCT, wherein significant improvements were seen in negative perceived body image post-intervention. The trial included 37 participants in each group, with mean ages of 44.7 ± 8.6 years and 43.9 ± 7.4 years in the control and intervention groups, respectively. Following the CBT-based intervention, comprising cognition reconstruction, muscle relaxation training, and meditation, the intervention group exhibited substantial reductions in negative perceived body image compared to the control group.

Esplen et al. (2018) [107] conducted a two-armed randomized controlled trial (RCT) in Canada with BC patients, predominantly in stages 0-II and with no information available on metastasis. The study aimed to assess the effectiveness of the "Restoring Body Image After Cancer" (ReBIC) program, which was based on CBT principles and delivered in group, face-to-face sessions over eight weeks. The control group (CG) received standard care along with educational materials, while the intervention group (IG) participated in expressive guided-imagery exercises, psychoeducation on sociocultural influences on body image, and psychotherapeutic group support. The study evaluated outcomes such as body image, sexual function, and quality of life using various measures. Post-intervention results showed a significant decrease in negative perceived body image in the IG compared to the CG (Cohen's d = -0.29, P < 0.010). However, there were no significant differences in sexual function (Cohen's d = 0.09, P = 0.190) or quality of life (Cohen's d = 0.13, P = 0.280). At the six-month follow-up, the IG exhibited a continued reduction in negative perceived body image (Cohen's d = -0.21, P < 0.010), with no significant changes in sexual function (Cohen's d = 0.21, P = 0.190) or quality of life (Cohen's d = 0.05, P = 0.280). Notably, at the 12-month follow-up, the reduction in negative perceived body image persisted and was even more pronounced (Cohen's d = -0.42, P < 0.010), while sexual function (Cohen's d = 0.29, P = 0.190) and quality of life (Cohen's d = 0.14, P = 0.280) remained relatively stable.

Cui (2019) [288] conducted a research in in China, involving BC patients in a 2-arms randomized controlled trial (RCT), the intervention group underwent a round-table, cognitive therapy-based intervention. The trial included 62 participants in both the control and intervention groups, aged 49.5 ± 8.2 years and 49.1 ± 8.4 years, respectively. Following the intervention, which comprised 6–8 sessions lasting 40–60 minutes each, significant improvements were observed in various outcomes. Notably, the

intervention group exhibited a substantial reduction in negative perceived body image, with a Cohen's d value of -4.20. Additionally, improvements were seen in depression (Cohen's d = -1.24, p = 0.018), anxiety (Cohen's d = -1.57, p = 0.020), and quality of life (Cohen's d = 2.41, p = 0.038).

Onyedibe, Ifeagwazi, and Umeh (2021) [251] investigated the efficacy of a 12-week group CBT (GCBT) program in improving adaptive cognitive emotional regulation (CER) among Nigerian women with BC. Thirty-one participants were randomly assigned to either the treatment group (TG, N = 16) or the control group (CG, N = 15). The TG received 90-minute GCBT sessions weekly for 12 weeks, while the CG received a booklet on cancer information and coping strategies. Assessments were conducted at baseline, post-treatment, and 2-month follow-up using the Cognitive Emotional Regulation Questionnaire. Results revealed a significant increase in adaptive CER and a decrease in maladaptive CER in the TG compared to the CG at both post-treatment and 2-month follow-up. These findings underscore the effectiveness of CBT in enhancing adaptive CER among women with BC, emphasizing its potential as a complementary treatment alongside standard oncology care in Nigeria.

Mokrivala et al. (2022) [240] sought to explore the impact of therapy interventions on the psychological well-being and pain experiences of women grappling with BC. Recognizing the intricate interplay between physical discomfort and emotional distress, the researchers designed a quasi-experimental study that delved into the effectiveness of two therapeutic approaches: gestalt therapy (GT) and a combination of GT with CBT known as GT-CBT. Their study cohort comprised 60 female patients undergoing treatment at Imam Khomeini Hospital Cancer Clinic in Tehran, Iran, selected based on stringent inclusion criteria. The participants were randomly allocated into three groups: a control group receiving standard care, a GT group, and a GT-CBT group. Throughout

the eight-week intervention period, patients in the GT and GT-CBT groups engaged in weekly online sessions facilitated through the Zoom app, each lasting 90 minutes. During these sessions, therapeutic techniques tailored to the principles of GT and GT-CBT were implemented to address the psychological and pain-related challenges faced by the participants. To measure the impact of the interventions, the researchers utilized well-established assessment tools: the Miller Hope Scale (MHS) to gauge levels of hope, and the Hayes & Peterson Visual Analog Scale (VAS) to quantify pain intensity. The analysis revealed significant differences in the mean scores of hope and pain from pre-test to post-test between the intervention and control groups (eta=0.79, $F(51, 2)=99.85$, $P<0.001$) and (eta=0.72, $F(51, 2)=73.60$, $P<0.001$), respectively. Further, the results of the study also showed that GT-CBT was more effective than GT on the hope and pain intensity of the subjects.

MATERIALS AND METHODS

SOURCE OF DATA

Study was conducted on 31 female patients diagnosed with Breast cancer by the oncologist admitted to the oncology ward, or visiting oncology OPD at Dayanand Medical College and Hospital.

SAMPLE COLLECTION

The study included 31 female patients diagnosed with Breast cancer by the oncologist (Stage I, Stage II, Stage III) undergoing chemotherapy or have undergone surgery, admitted to the oncology ward, or visiting oncology OPD at Dayanand Medical College and Hospital, Ludhiana within the age range of 18- 60 years.

RESEARCH DESIGN

Pre- and post-design was used for the current study. Participants underwent a pre-test, then received treatment intervention, followed by a post-test administered at the end of the intervention.

SAMPLING TYPE

Purposive sampling design was used to form sample for data collection. Sample size estimation was used to ascertain the number of participants required for the study. Purposive sampling involved deliberately selecting specific participants who met the inclusions criteria relevant to the research questions. The inclusion and the exclusion criteria used for the present study was as described below:

INCLUSION CRITERIA

- A diagnosis of Breast cancer (Stage I, II, III) according to the oncologists
- Patient of age between 18 to 60 years.
- Patient undergoing chemotherapy or have undergone surgery.
- Patients willing to give informed consent.

- Primary level education.

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EXCLUSION CRITERIA

- Patients with any major comorbid psychiatric illness (Psychotic Disorder, Major depressive disorder, Bipolar Affective Disorder and OCD)
- History of Intellectual disability
- Major neurological disorder or communication disorder.
- Patients with any limb amputations.

TOOLS FOR ASSESSMENT:

1. Socio- demographic Performa
2. The Body Image Scale (BIS)
3. The Emotion Regulation Questionnaire (ERQ)
4. Beck Hopelessness Scale (BHS)

DESCRIPTION OF THE TOOLS:

1. **Socio- demographic Performa** containing identification details like age, gender, MRD number, occupation, education and income, as well as the education and employment level of the head of family was administered. Information was also gathered regarding the patient's current phase of cancer, time since diagnosis, treatment modality and pharmacological management. Socio economic status was calculated using the updated modified Kuppuswamy Socio- economic status scale. [289]
2. **The Body Image Scale (BIS):** The 10-item scale designed by Hopwood et al. (2001) [121] assesses changes in body image in patients diagnosed with cancer. The items are assessed on a four-point scale from "not at all" to "very much." The internal consistency correlation coefficient is 0.92, making the scale a reliable and valid measure. The final score is the sum of the 10 items, ranging from 0 to 31. More score indicates more body image concerns.

3. **The Emotion Regulation Questionnaire (ERQ):):** ERQ, developed by Gross and John (2003) [168] is a 10-item self-report measure which assess two specific constructs associated with emotion control—cognitive reappraisal and expression suppression. The cognitive reappraisal facet is made up of six statements and the rest are of the expressive suppression facet. Internal consistency reliability ranges from α = .89-.90 for cognitive reappraisal (α = .89-.90) and for expressive suppression α = .76-.80. Answers are scored on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). The final scoring is done by taking the average of all the scores in each subscale of cognitive reappraisal and expressive suppression. Higher scores reflects more frequent use of a specific emotion regulation strategy, conversely lower scores represent less frequent use.
4. **Beck Hopelessness Scale (BHS):** BHS developed by Beck et al., (1974) [145] is a self-assessment questionnaire designed to measure negative attitudes toward the future. It is composed of 20 dichotomous “true/false” items that aimed to assess three major aspects of hopelessness: feelings about the future, loss of motivation, and expectations. The internal reliability coefficients range from r = 0.82 to 0.93 (Beck A.T.) Total scores were created by first reverse-coding nine items (items 1, 3, 5, 6, 8, 10, 13, 15, 19) and then summing the item scores. Higher total scores indicate greater hopelessness (range 0–20).

PROCEDURE

The study was conducted on 31 patients from 18 to 60 years of age diagnosed with Breast cancer (Stage I, Stage II, Stage III) undergoing chemotherapy or have undergone surgery, admitted to the oncology ward, or visiting oncology OPD at Dayanand Medical College and Hospital, Ludhiana. All participants were informed of the study's aims and objectives as well as the fact that their participation was entirely voluntary. Informed consent was obtained from all participants, who were advised that they

could withdraw from the study at any time. Participation was completely voluntary, with no coercion involved. Participants were assured of anonymity and the confidentiality of their information was emphasized. They were also informed of their right to obtain a briefing on the study's findings if they so requested. Socio Demographic Proforma was filled containing the basic information of the subject. They were evaluated for distress in body image in patients diagnosed with breast cancer using Body Image Scale (BIS), emotion regulation and cognitive reappraisal using Emotion Regulation Questionnaire (ERQ) and hopelessness using Beck Hopelessness Scale (BHS). All the tools were clinician administered and clinician rated. Each participant underwent eight weekly sessions of Cognitive Behavioural Therapy (CBT). The duration of the CBT sessions ranged from 40 minutes each. The CBT sessions were delivered via individual therapy. After completion of the CBT sessions, participants were assessed once again for distress in body image, emotion regulation and hopelessness using the above mentioned tools. After a period of 2 months after the post-test, in order to evaluate the durability of the treatment, participants were re-evaluated to determine the effect of the therapeutic intervention in the follow-up phase on the above mentioned tools. Scores were compared and analysed using appropriate statistical methods.

INTERVENTION

COGNITIVE BEHAVIOURAL THERAPY (CBT)

CBT is a form of psychotherapy that helps breast cancer patients learn how to identify and change disruptive or disruptive thought patterns that negatively affect their behavior and emotions. CBT focuses on changing thoughts that can lead to emotional problems, depression and anxiety. These negative thoughts automatically have destructive effect on the mood of the audience. Through CBT, these thoughts are identified and then challenged and eventually replaced with more objective and realistic

thoughts. It is effective for patients' emotional problems and is a combination of cognitive and behavioral approaches that help patients to identify and change their distorted patterns and dysfunctional behavior; in such a way that they can make favorable changes in their life. By fostering adaptive coping skills, promoting positive self-perception, and empowering individuals to take control of their emotional well-being, CBT plays a pivotal role in supporting patients as they navigate the challenges of cancer treatment and recovery.

SESSION PLAN:

Table A: The following session plan would be followed based on based on Lewis-Smith et al. (2019) [289] ; Faraji et al., (2015); [246] Cash's The body image workbook (2008) [290]

S.NO	SESSION	AREA
	Baseline assessments	Detailed history taken, Baseline assessments
	Session 1	Psychoeducation on the interplay of emotions, thoughts, body sensations, and behaviors, and how it impacts the treatment process. Handout with information about body image and questions exploring one's belief about their body provided as between session- activities.
	Session 2	Collected previous session assignments. Use of Metaphors and Examples to normalize experiences, foster emotional engagement, visualization, empowerment, and learning. Introduction of the adaptive way of regulating and coping with emotions. Introduction of relaxation techniques and creation of distraction list.

	Session 3	Collected previous session assignments. Addressing Body Image Issues Using the A-B-C Model. Addressing Emotional Challenges and Concerns Related to Treatment Encouragement of Self-Compassion and Self-Care Techniques. Practice of Relaxation Exercise Positive Self-Affirmations and Behavior monitoring introduced.
	Session 4	Collect previous session assignments. Discussion on the Role of Cognitions in Body Image Issues. Introduction of the concept of negative automatic thoughts. Introduction to Cognitive Distortions. Introduction of thought diary to identify negative automatic thoughts. Practice of Relaxation Exercise
	Session 5	Collect previous session assignments. Focus on Identifying and Stopping Negative Body-Related Self-Talk. Utilization of Neutral Self-Talk to Cope with Negative Body Image. Cognitive restructuring. Utilization of Affirmations for Positive Self-Talk. Practice of Relaxation Exercise
	Session 6	Collect previous session assignments. Focusing on Acceptance versus change Building Mastery, Building Positive Experience and Mood Momentum Activity Scheduling Practice of Relaxation Exercise

	Session 7	Collect previous session assignments. Focus on Reviewing and Reinforcing CBT Concepts and Procedures Identification of Situations that Could Result in Readopting Maladaptive Cognitions and Behaviors Development of a Customized Plan for Using CBT to Reduce the Risk of Relapse and Reach Future Goals. Practice of Relaxation Exercise
	Session 8	Follow up and closing; encouragement for Daily Practice of CBT Techniques taught throughout the sessions Practice of Relaxation Exercise. Post-intervention assessment.

Pre-test phase- BASELINE APPOINTMENT:

- Participants were explained the aims and objectives of the study.
- Informed consent was taken.
- Participants were briefed on the voluntary nature of the study and their right to withdraw at any time. They were informed about the potential future impacts of the research and were given the option to request the results. Additionally, participants were made aware of the active intervention that would be employed during the study.
- Socio demographic Proforma was filled
- Detailed case history of the participants with along with their phase of illness and information about treatment modality were taken.
- They were further evaluated on **Body Image Scale (BIS), Emotion Regulation Questionnaire (ERQ) and Beck Hopelessness Scale (BHS).**

- **SESSION 1**

- The session started with rapport formation. Reflective listening was used to establish a rapport with the participants. Session was focused on getting to know about the participant's view of the treatment process, their expectations, hopes and fears emotional experiences related to the disease and its impact on the quality of life.
- **Psychoeducation** was done regarding the side effects of chemotherapy and surgery, in particular hair loss, scars and mastectomy, both from a practical and emotional point of view; the impact of the disease and treatment on several aspects of participant's life: physical, psychological, social, professional, etc.
- Examples were given to explain the interplay of emotions, thoughts, body image and maladaptive behaviour and their effect on the treatment procedure and sense of self of the individual.
- **Between-session activities:** Handout with information about body image and questions exploring one's belief about their body was provided as homework assignment. A worksheet was given with different body image concerns related to breast cancer treatment were listed and the participant was asked to tick the topics that they would like to talk about.

- **SESSION 2**

Previous CBT session was overviewed and summarized. Any reflections that the participants had regarding the previous session were discussed.

- Topics that the participant selected on wanting to talk about related to body image concerns were addressed.
- This session focused on use of metaphors and examples to educate the participants about the critical role of emotion regulation in dealing with negative emotions and distress related to the cancer and the side effects of its treatment.
- **Emotional regulation model by Conley et al., 2016** was introduced for this purpose which hypothesized that the affective experiences of an individual have a significant impact on their quality of life; however, this

impact functions partially through the mechanism of emotion regulation. The emotion regulation techniques utilized does not talk about replacing negative emotions with positive ones. Instead, the individual still experiences the negative emotion; however they adjust the dynamics of each emotion and produce adaptive responses to the environment. Adaptive responses to the environment lead, in turn, to improved outcomes and quality of life.

- **Relaxation Exercise** was introduced and practiced in the session to help reduce fatigue, pain and decrease stress to have an overall positive impact on healing. Script was shared to the participant to practice it on their own.

SCRIPT

"Before we begin, find a comfortable position. You can sit or lie down, whatever feels best for you. Close your eyes gently and take a few deep breaths in and out, letting go of any tension or worries with each exhale.

Now, imagine yourself in a peaceful place. It could be a serene beach, a tranquil forest, or a cozy room filled with warmth and light. Picture yourself surrounded by calmness and safety.

Focus on your breathing. As you inhale, feel the air filling your lungs, and as you exhale, feel any tension leaving your body. Let each breath deepen your sense of relaxation.

Now, bring your attention to your body. Starting from your toes, imagine a wave of relaxation washing over you, soothing every muscle and releasing any tightness. Feel this wave move slowly up your body, bringing comfort and ease to each area it touches.

As you continue to breathe deeply, visualize a warm, healing light shining down on you from above. This light is filled with love, strength, and healing energy. Allow it to envelop you, nurturing your body and soul.

With each breath, imagine this healing light penetrating every cell of your body, promoting health and well-being. Feel its gentle warmth soothing any discomfort or pain you may be experiencing.

Now, take a moment to focus on gratitude. Think about all the things in your life that bring you joy and comfort. Feel a sense of gratitude fill your heart, uplifting your spirits and renewing your strength.

Take one final deep breath in, and as you exhale, slowly begin to bring your awareness back to the present moment. Wiggle your fingers and toes, and when you're ready, gently open your eyes"

- A **Distraction list** was prepared by taking suggestion from the participant. The list included of distraction techniques that can be helpful for cancer patients to manage pain, discomfort, anxiety, and emotional distress. These techniques provided a healthy way to redirect focus and temporarily shift attention away from challenging experiences. It included techniques like reading, coloring, listening to music or podcasts, social interactions, gardening or nature time etc. that did not interfere with the medical management.
- **Metaphors** were used for normalization of experience, fostering emotional engagement, visualization, empowerment, and learning.

  Navigating Stormy Seas metaphor was introduced: This was introduced to illustrate the emotional journey of facing a cancer diagnosis and undergoing treatment. It depicted the turbulent nature of this experience, akin to sailing through rough waters. Just as a ship caught in a tempestuous storm, individuals grappling with cancer felt overwhelmed by emotions like fear, anxiety, sadness, and anger, which surged like turbulent waves.

  However, like sailors relying on navigational tools to steer through rough waters, individuals facing cancer developed coping mechanisms and emotional regulation strategies. These tools ranged from seeking support

from loved ones to practicing mindfulness and relaxation exercises. As treatment progressed and emotions stabilized, individuals began to glimpse the shore on the horizon—a symbol of hope and the potential for remission and recovery.

The metaphor aimed to acknowledge the complexity of emotions that cancer patients and survivors encountered while underscoring the importance of self-compassion, support, and coping strategies in weathering the emotional storms throughout their cancer journey. Just as skilled sailors could navigate rough seas, individuals learned to regulate their emotions and find moments of peace and strength amidst the challenges.

- **Between-session activities:** A strength exploration worksheet was provided that focused on helping the patient identify their strengths, in several domains, such as special abilities, positive impact on others, values, and more. This explored their roles in different areas of life aiming at improving their well-being and building their self-esteem.

➢ **SESSION 3**

- Previous CBT session was overviewed and summarized. Any reflections that the participants had regarding the previous session were discussed. Previous session assignments were collected.
- **Relaxation exercise** – Guided Imagery was practiced.
- Session 1 between-session worksheet on the concern regarding body image issues were addressed using the **A-B-C model.**
- Affective, Behavioral and Cognitive component leading to and maintaining negative body image were discussed.
- A flowchart was drawn to express and explain how patient's affective factors such as emotional challenges due to hair loss, weight fluctuation, changes in skin complexion, and other visible alterations, accompanied with behavioral factors such as modifying one's behavior such as by

avoiding social situations, public gatherings, or intimate relationships due to concerns about how they look in response to their altered appearance and distorted cognitive belief about self leads to body-related anxieties affecting their day-to-day activities and their quality of life.

- Patient's own **emotional challenges and concern** related to chemotherapy and surgery were listed down, and addressed They were encouraged to practice self-compassion and self-care using different techniques:
- **Identify Common Humanity:** Participants were asked to engage in a conversation with other patient going through the treatment either in the ward or meeting them in OPD, outside of the hospital etc. This was aimed at helping participants remember and acknowledge that they are alone in their struggles. They were motivated to share experiences and find support from others.
- **Self-Care Rituals**: A list was made with suggestion from participants self-care activities that they could engage in for example, taking warm baths, enjoying a favorite hobby, spending time in nature, or listening to calming music.
- A list of **positive self-affirmations** was given to the participants and they were asked to practice it at least twice a day. For example: "I acknowledge my emotions, and its okay to feel vulnerable; I am allowed to seek support." "I am more than my diagnosis."
- **Butterfly Transformation metaphor** was introduced**:** It symbolized the journey of individuals undergoing treatment, such as chemotherapy, and the profound changes experienced in their bodies. It likened this journey to the stages of growth and transformation observed in a butterfly. Initially, individuals were compared to caterpillars, content with their healthy body image. However, with the diagnosis of illness and subsequent treatment, akin to a caterpillar entering a cocoon, profound changes were initiated. This stage represented a period of intense transformation, marked by physical and emotional challenges that may be difficult to accept and

adapt to. As time progressed, individuals began to heal and recover from the treatment's side effects, mirroring the developing butterfly inside the chrysalis, starting to perceive glimpses of their new body image taking shape. Finally, emerging from the chrysalis, the butterfly symbolized a new phase of life and body image. Just as the butterfly's vibrant wings symbolize beauty and resilience, individuals who underwent treatment may discover newfound strength and appreciation for their changed bodies.

- **Between-session activities**: A worksheet was provided to the patient and they were asked to write down their emotion, their thoughts, and their maladaptive behavior in regard to the changes in their body image during the chemotherapy or due to surgery. Participants were asked to self-monitor and record their behaviour(s) as part of a behavioral change strategy. They were asked to record the number of times they check their appearance in the mirror. Every time they looked into the mirror they were asked to practice positive self-affirmation.

➢ **SESSION 4**

- Previous CBT session was overviewed and summarized. Any reflections that the participants had regarding the previous session were discussed. Previous session assignments were collected.
- Cognitions and the role that they play in feelings and behaviours that are related to body image were discussed. Attention was paid to concepts such as irrational beliefs (e.g., If I don't look the way I used to, then I must be completely undesirable), automatic thoughts, cognitive errors (e.g., dichotomous thinking, mind reading, labeling) etc.
- A list of **cognitive distortions** was provided to the participant and examples were given on how it exacerbate emotional distress and influence behavior negatively.
- Participants were helped in identifying their negative thought patterns related to their bodily change during the treatment process experience.

These included catastrophic thinking ("I can't handle this"), mind reading: ("Everyone must be staring at me and thinking I look horrible"), or overgeneralization ("Everything is terrible"). Encourage them to challenge these thoughts by looking for evidence to support or contradict them.

- Participants were taught techniques to monitor and restructure their cognitions by giving example. Techniques used included keeping thought records, using the **A-B-C model** (i.e., tracking the 'activating event,' one's beliefs about the event, and the emotional or behavioural consequences of those beliefs), or the **Triple Column Technique** (i.e., recording one's automatic thoughts, identifying the cognitive errors in those thoughts, and then responding critically and rationally to those thoughts).
- **Relaxation exercise** - Guided Imagery was practiced.
- **Between-session- activities:** Thought record was given to the participants and they were asked to maintain it. It was used to capture, evaluate, and restructure their negative automatic thoughts.

➢ **SESSION 5**

- Previous CBT session was overviewed and summarized. Any reflections that the participants had regarding the previous session were discussed. Previous session though record were collected. Participant's maladaptive thought, emotion, behavior and their adaptive alternative were reviewed. They were encouraged to continue practicing the same, and any resistance or difficulty in doing so was addressed.
- This session focused on identifying and stopping negative body-related self-talk and developing alternative, balanced thoughts.
- **Using Neutral Self-talk to Cope With Negative Body Image**: Participants were taught to improve the language they use to describe their body. For example, participants may be taught to avoid using negative, evaluative terms (e.g., "I have a disgusting body") and to instead use terminology that is nonjudgemental and fact-based (e.g., "I have lost weight, due to which my body looks frail.").

- **Participants were taught to focus their attention less on body parts they dislike and to focus more attention on other body parts and on seeing one's body as a whole:** This included participants to focus less on appearance-related aspects of the body (e.g., weight, shape) and to focus more on functionality-related aspects of the body (e.g., bodily senses, movement) For example, researcher along with participant explored how the body can be viewed in terms of its functionality (e.g., fitness, sensory experience, ability to carry out a task) or capacity to express internal qualities (e.g., kindness, intelligence, sense of humour) rather than in terms of appearance, or how mastery and pleasure can be achieved through the body (e.g., by receiving a massage or engaging in physical activities that one enjoys).
- **Utilizing Affirmations to Engage in Positive Self-talk:** Positive affirmations might include: "My body is not the most important thing about me," "I'm thankful for my body's strength," "I love and accept my body as it is," "I can trust my body," etc.
- **The Chemo-Critic Monster metaphor** was introduced**:** Just like a monstrous creature lurking in the shadows, the Chemo-Critic Monster feeds on the vulnerability and uncertainty that often come with undergoing cancer treatment. As treatment progresses, the Chemo-Critic Monster whispers harsh and critical thoughts into the patient's mind. It amplifies any physical changes or discomfort caused by the treatment, making the patient hyper-aware of their perceived flaws and vulnerabilities. The Monster may tell the patient that they are weak, unattractive, or that their body is betraying them. This Monster is relentless, making it challenging for the patient to escape from its grip. It can lead to increased body image distress, reduced self-esteem, and heightened emotional turmoil during an already challenging time. Thus, recognizing the presence of the Chemo-Critic Monster is the first step in combating its influence. By acknowledging the negative self-talk and understanding that it is a product

of the challenging circumstances, the patient begins to regain some control over their thoughts and emotions.

- **Relaxation exercise** - Guided Imagery was practiced.
- **Between-session- activities:** Create list of **Positive Affirmations** related to body image by yourself. Such as: "I love and appreciate my body just the way it is."; "My body is resilient and capable of healing."; "I am more than my appearance; my worth goes beyond my looks."

➢ **SESSION 6**

- Previous CBT session was overviewed and summarized. Any reflections that the participants had regarding the previous session were discussed.
- **Acceptance vs Change:** The concept of **Acceptance** was introduced as a pivotal process in acknowledging the reality of the circumstances without striving to alter them. It's emphasized that acceptance isn't synonymous with resignation or giving up but rather recognizing the truth of their situation. Initially, many patients resist accepting their diagnosis, wishing for everything to change, which often leads to unrealistic expectations and heightened distress. To address this challenge, a structured set of skills was introduced: **Practical Acceptance (PA), Practical Change (PC), and Radical Change (RC).**
- Another essential aspect introduced was the **Principle of Dialectics**, which underscores the fusion of acceptance and change. For instance, a patient may aspire to be free from distress (change) while simultaneously acknowledging their current distress levels (acceptance). By integrating these seemingly opposing elements, patients cultivated a more realistic perspective on their experiences.

- At one end of the spectrum lies **Radical Acceptance (RA)**, which involves embracing reality fully and relinquishing the impulse to alter it. P**ractical**

Acceptance (PA) represents a more moderate approach, enabling patients to accept their circumstances while still exerting influence over certain aspects. Meanwhile, **Practical Change (PC)** focuses on initiating alterations within the confines of acceptance, acknowledging that certain elements may remain resistant to change. In extreme cases, **Radical Change (RC)** may be warranted, entailing a comprehensive overhaul of the situation when no other viable alternatives exist.

- These skills offers valuable support to breast cancer patients by providing practical tools for navigating their journey. By fostering Acceptance, patients can come to terms with their circumstances, reducing distress and promoting a sense of inner peace. Furthermore, by balancing acceptance with targeted efforts for change, patients can set realistic goals and take proactive steps toward improving their well-being. This holistic approach equips patients with the tools needed to cope effectively, enhance resilience, and ultimately improve their overall quality of life throughout their cancer journey.
- **Building Mastery, Positive Experiences, Mood Momentum**: Introduced replacement coping strategies that focus on building mastery, positive experiences, mood momentum, and instilling hope for patients undergoing treatment for breast cancer.
- During the therapy session, the concept **of Building Mastery** through engaging in activities with a high probability of success was explained. The patient was encouraged to identify activities that made them feel competent and in control, despite their diagnosis. Together, achievable goals or tasks were brainstormed and created to help the patient experience a sense of accomplishment.
- Next, the idea of **Building Positive Experiences** by engaging in activities that enhance the patient's quality of life was introduced. The benefits of focusing on positive emotions and how it can reduce the impact of negative situations were discussed. Collaboratively, activities that brought

the patient joy, peace, and happiness were identified, and incorporating these into their daily routine was encouraged.

- Also, the concept of **Mood Momentum** was explored. It was explained how it involves noticing and engaging in positive experiences to maintain a positive outlook. Common barriers the patient might face in staying engaged in positive activities were discussed, and strategies to overcome them were explored.
- **Mastery and pleasure principle**: An **activity schedule** was made using behavioral activation along with participant suggestions. From this behavioral standpoint, cancer and its treatment, for example, contains a host of characteristics that function to maintain depressive affect (e.g., passivity, fatigue, feelings of hopelessness) and decrease chances of adaptive coping by increasing avoidance. Re-introducing pleasant events (one form of behavioral activation) can serve to improve mood by increasing self-confidence and increasing feelings of usefulness and purpose.
- **Relaxation exercise** - Guided Imagery was practiced.
- **Between-session- activities**: Participants were asked to create a schedule of the new activities that they will perform. They were asked to list down answers to these questions: What activities did they previously use to enjoy that they liked to start participating in again? Which ones did they accomplish? Were there any barriers? Why? How did they handle them?

➢ **SESSION 7**

- Previous CBT session was overviewed and summarized. Activity schedule was reviewed and barriers were addressed.
- The session was focused on reviewing and reinforcing the importance of continued use of CBT concepts and procedures. It aimed at developing a customized plan for using CBT to help reduce the risk of relapse and reach future goals to enhance patient's quality of life.

- Situations that could result in participants readopting maladaptive cognitions and behaviours or failing to maintain adaptive cognitions and behaviours (e.g., someone commenting on their hair loss or body scars) were identified and a plan was developed to cope with that, which included a package of positive **self- talk, deep breathing, distraction using physical exercise, talking to loved one or listening to music and thought ventilation.**

➢ **SESSION 8**

- As a follow-up and closing to the session, the patient was encouraged to engage in daily practice of the CBT techniques taught throughout the sessions.
- The participants were thanked for their participant and sincere disclosure of personal information.
- **Relaxation exercise-** Guided Imagery was practiced.
- A **post-intervention assessment** was conducted to gauge the patient's understanding and implementation of the techniques. The importance of consistent practice was emphasized, as it would reinforce the skills learned and enhance their effectiveness in managing stress and promoting mental health

Post- Intervention phase:

Post the completion of the 8th session, participants was revaluated for body image distress, emotion regulation and hopelessness. They were thanked for their active participation in the study. They were informed about their rights to obtain results of the study, should they ask for it.

Follow up phase:

Participants were informed about the *follow-up session* scheduled to take place after 2 months after the post- test phase. During this session, they were evaluated on the Body Image Scale (BIS), Emotion Regulation Questionnaire (ERQ), and Beck Hopelessness Scale (BHS) to assess the

efficiency of CBT by evaluating the durability of the treatment, and outcomes of the intervention. During this session, any questions or uncertainties the participants had about the study were addressed and clarified.

STATISTICAL ANALYSIS:

Data was described in terms of mean ± standard deviation (± SD), frequencies (number of cases), and relative frequencies (percentages) as appropriate. The normal distribution of data was assessed using the Kolmogorov-Smirnov test. Comparison of pre- and post-quantitative variables was conducted using the Paired t-test. Pearson's correlation coefficient was computed to determine the correlations between variables. Stepwise multiple regression analyses were employed to examine predictors of variables. A probability value (p-value) less than 0.05 was considered statistically significant. All statistical calculations were performed using the Statistical Package for Social Sciences (SPSS) version 21 (SPSS Inc., Chicago, IL, USA) for Microsoft Windows.

OBSERVATIONS AND RESULTS

Table 1: CHARACTERISTICS OF PARTICIPANTS

Characteristics (N=31)	**N (%)**
Age	
Mean (SD)*	48.3 (8.4)
30-41	8 (25.8)
41-50	11 (35.5)
51-60	12 (38.7)
Marital status	
Widowed	25 (80.6)
Married	6 (19.4)
Education	
Upto 10^{th}	7 (22.6)
10^{th}	6 (19.4)
12^{th}	9 (29.0)
Graduate	5 (16.1)
Post-Graduate	4 (12.9)
Occupation	
Unemployed	20 (64.5)
Skilled agricultural and fishery	1 (3.2)
Clerks	3 (9.7)
Professional	7 (22.6)
Type of Residence	
Urban	20 (64.5)
Rural	11 (35.5)
Family Type	
Joint	6 (19.4)
Nuclear	20 (80.6)

Socio-Economic Status	
Upper class (I)	15 (48.4)
Upper middle class (II)	11 (35.5)
Lower middle class (III)	4 (12.9)
Upper lower class (IV)	1 (3.2)
Time Since Diagnosis	
1-6 months	6 (19.4)
7-9 months	10 (32.3)
10-13 months	9 (29)
14-18 months	6 (19.4)
Phase Of Cancer	
I	3 (9.7)
II	14 (45.2)
III	14 (45.2)
Treatment Modality	
Chemotherapy	2 (6.5)
CT* + Surgery	25 (80.6)
CT* + Surgery + Others (RT*, HT*, etc.)	3 (9.7)
CT*+ Others (RT*, HT*, etc.)	1 (3.2)
Pharmacological Treatment History	
Trastuzumab	7 (25.8)
Trastuzumab + Docetaxel	6 (19.3)
Pacilatexel	6 (35.6)
Trastuzumab + Pacilatexel	2 (45.2)
Adriamycin + Cyclophosphamide	9 (29.0)
Other	1 (3.2)

SD=Standard Deviation, CT= Chemotherapy, *RT= Radiation Therapy, *HT= Hormonal Therapy

Table 2: DISTRIBUTION OF PARTICIPANTS BASED ON AGE GROUPS

Age Groups	Number of Participants	Percentage (%)
30-41	8	25.8 %
41-50	11	35.5 %
51-60	12	38.7 %

Figure 4: DISTRIBUTION OF PARTICIPANTS BASED ON AGE GROUPS

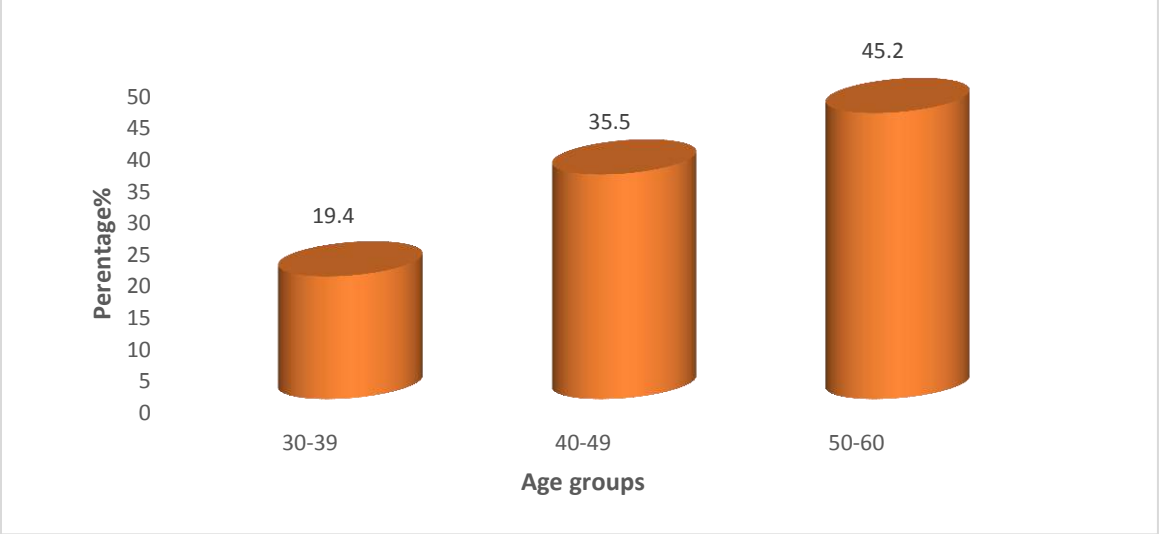

Table 3: DISTRIBUTION OF PARTICIPANTS BASED ON MARITAL STATUS

Marital Status	Number of Participants	Percentage (%)
Widowed	6	19.4%
Married	25	80.6%

Figure 5: DISTRIBUTION OF PARTICIPANTS BASED ON MARITAL STATUS

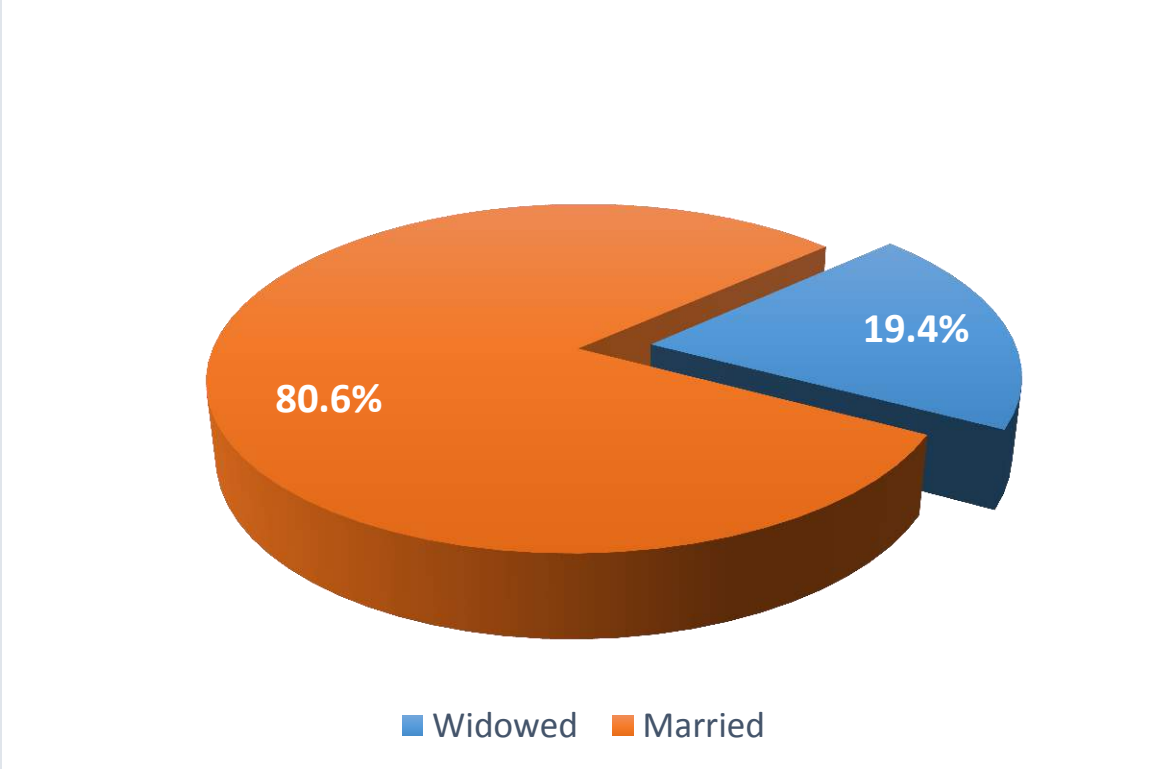

Table 4: DISTRIBUTION OF PARTICIPANTS BASED ON EDUCATION

Level of Education	Number of Participants	Percentage (%)
Upto Middle Class	7	22.6%
10th	6	19.4 %
12th	9	29.0 %
Graduate	5	16.1 %
Post- Graduate	4	12.9 %

Figure 6: DISTRIBUTION OF PARTICIPANTS BASED ON EDUCATION

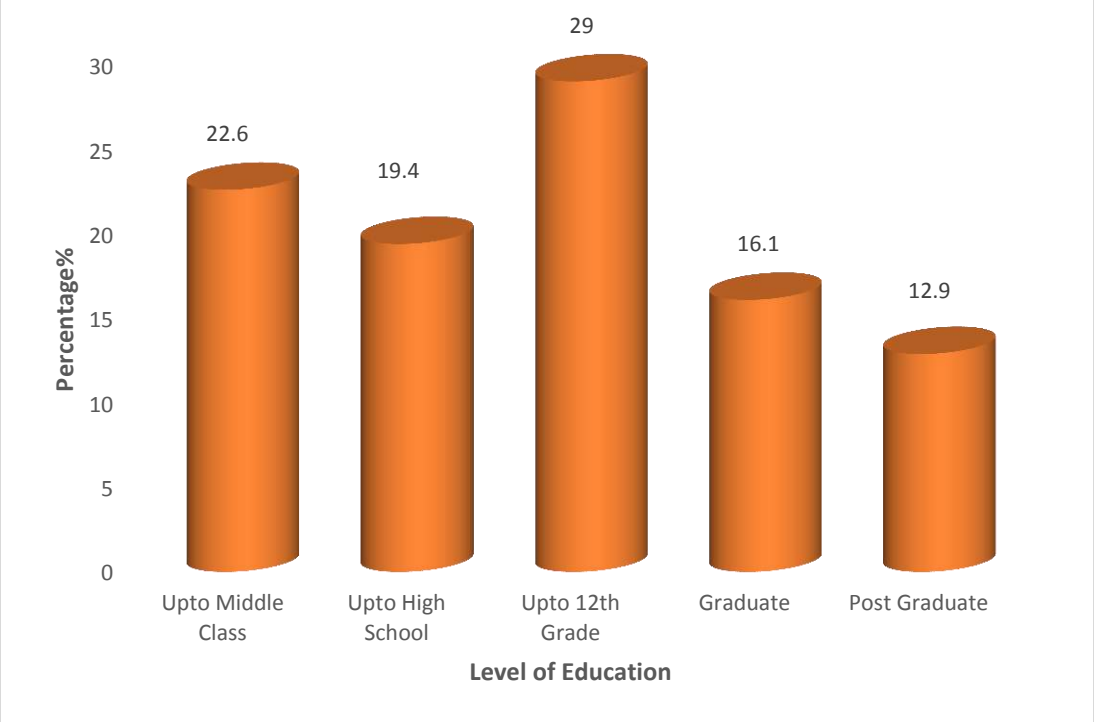

Table 5: DISTRIBUTION OF PARTICIPANTS BASED ON OCCUPATION

Occupation	Number of Participants	Percentage (%)
Unemployed	20	64.5%
Agriculture	1	3.2%
Clerk	3	9.7%
Professional	7	22.6%

Figure 7: DISTRIBUTION OF PARTICIPANTS BASED ON OCCUPATION

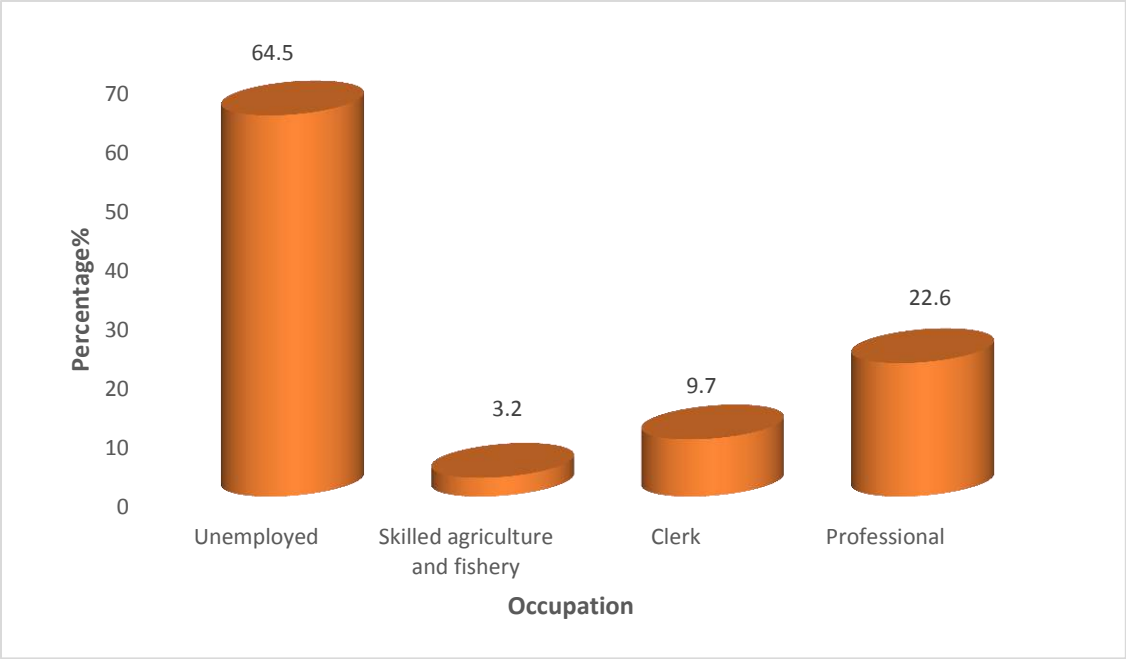

Table 6: DISTRIBUTION OF PARTICIPANTS BASED ON THEIR RESIDENCE

Type of Residence	Number of Participants	Percentage (%)
Urban	20	64.5%
Rural	11	35.5%

Figure 8: DISTRIBUTION OF PARTICIPANTS BASED ON THEIR RESIDENCE

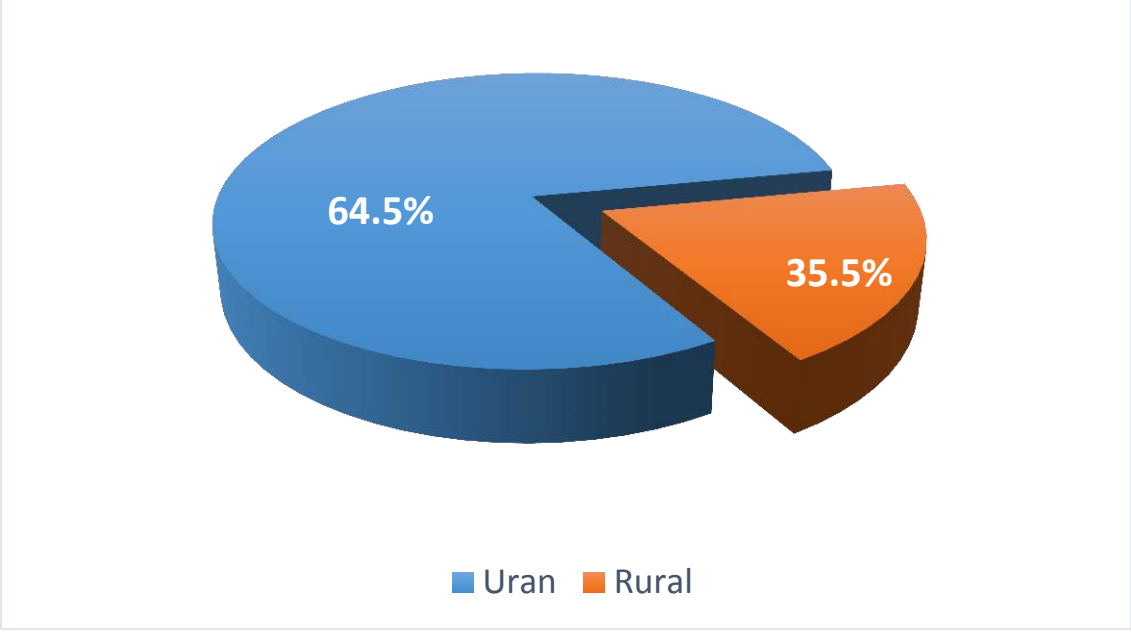

Table 7: DISTRIBUTION OF PARTICIPANTS BASED ON FAMILY TYPE

Type of Family	Number of Participants	Percentage (%)
Nuclear	25	80.6%
Joint	6	19.4%

Figure 9: DISTRIBUTION OF PARTICIPANTS BASED ON FAMILY TYPE

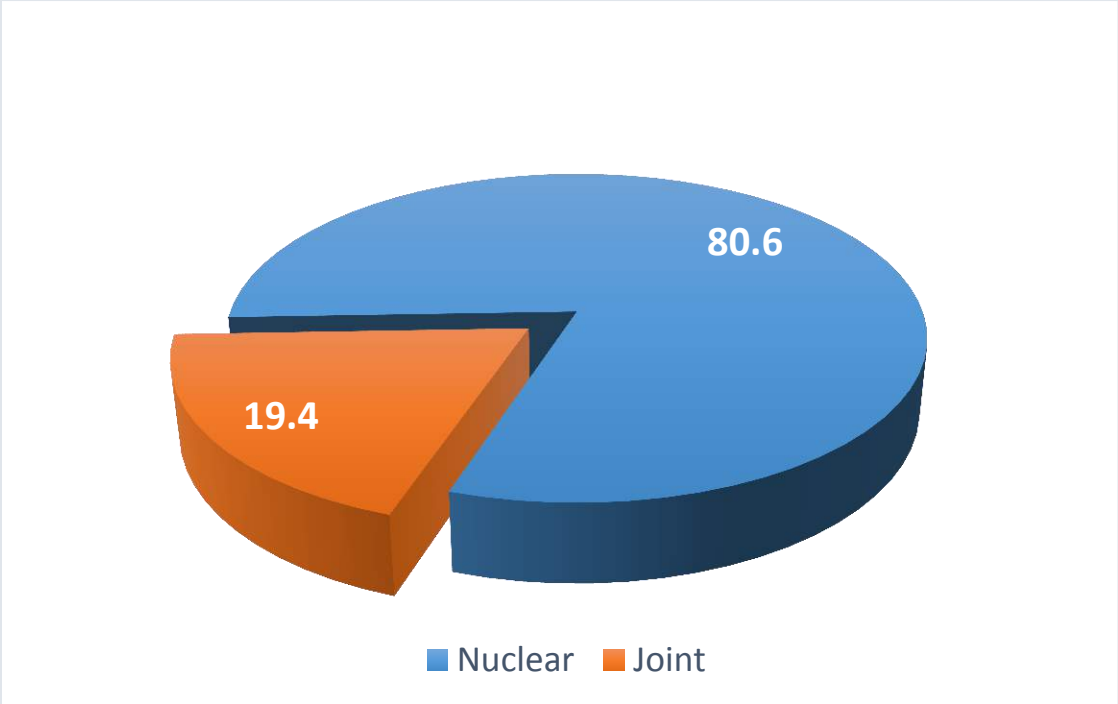

Table 8: DISTRIBUTION OF PARTICIPANTS BASED ON SOCIO-ECONOMIC STATUS

Socio- Economic Status	Number of Participants	Percentage (%)
Upper Class	15	48.4%
Upper- Middle Class	11	35.5%
Lower- Middle Class	4	12.9%
Upper- Lower Class	1	3.2%

Figure 10: DISTRIBUTION OF PARTICIPANTS BASED ON SOCIO-ECONOMIC STATUS

Table 9: DISTRIBUTION OF PARTICIPANTS BASED ON TIME SINCE DIAGNOSIS

Time since Diagnosis (Months)	Number of Participants	Percentage (%)
1-6	6	19.4%
7-9	10	32.3%
10-13	9	29%
14-18	6	19.4%

Figure 11: DISTRIBUTION OF PARTICIPANTS BASED ON TIME SINCE DIAGNOSIS

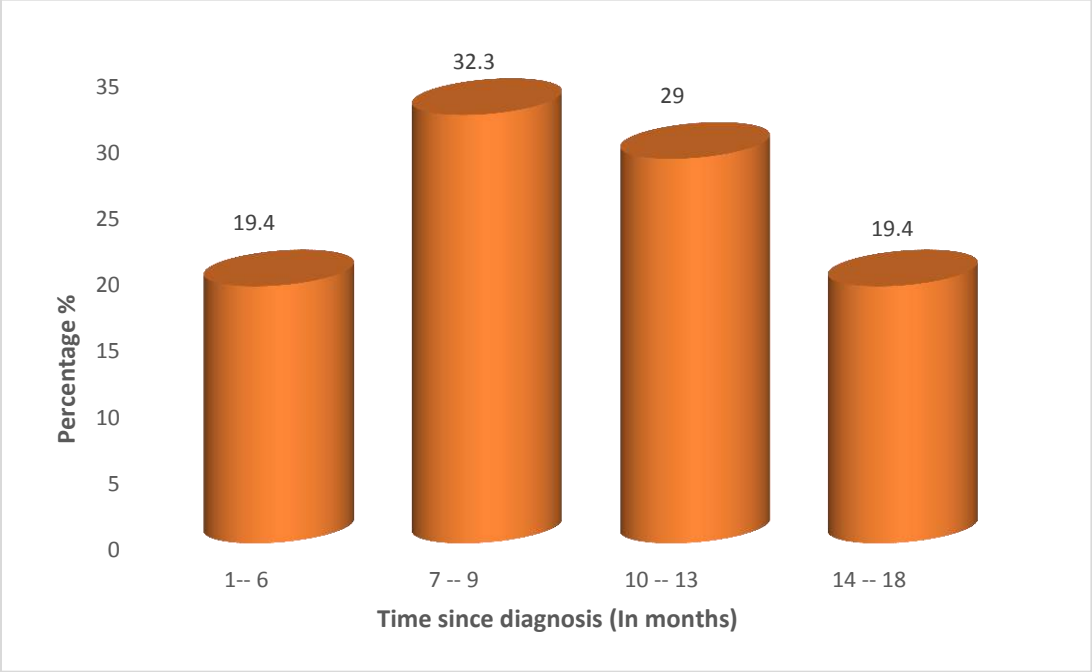

Table 10: DISTRIBUTION OF PARTICIPANTS BASED ON PHASE OF CANCER

Phase of Breast Cancer	Number of Participants	Percentage (%)
I	3	9.7%
II	14	45.2%
III	14	45.2%

Figure 12: DISTRIBUTION OF PARTICIPANTS BASED ON PHASE OF CANCER

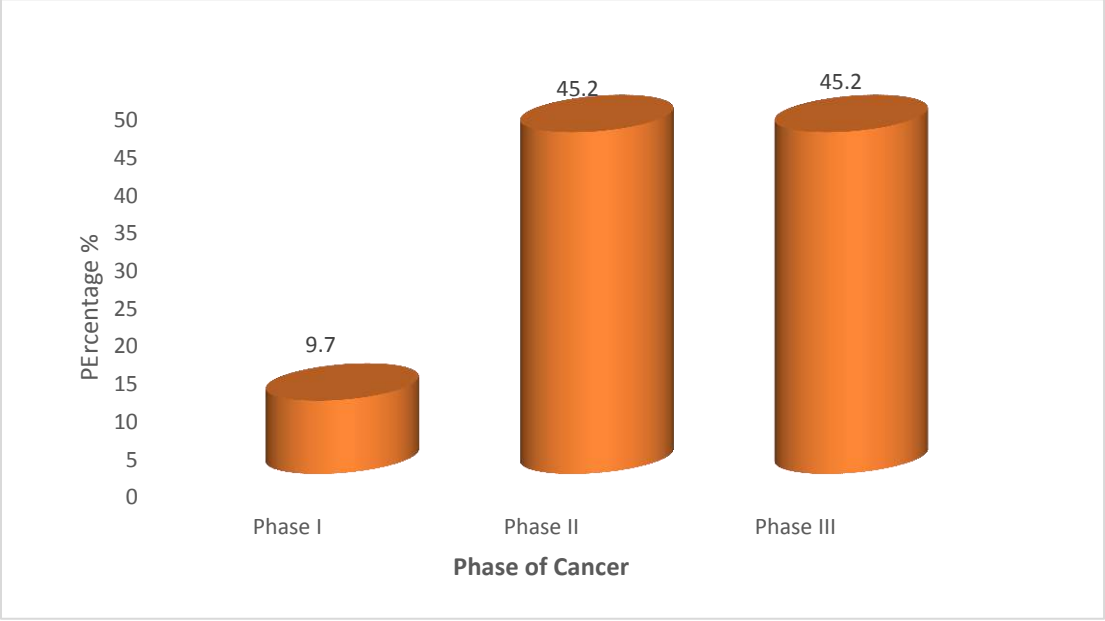

Table 11: DISTRIBUTION OF PARTICIPANTS BASED ON TREATMENT MODALITY

Treatment Modality	Number of Participants	Percentage (%)
Chemotherapy	2	6.5%
CT* + Surgery	25	80.6%
CT* + Surgery + RT/ HT*	3	9.7%
CT *+ RT/HT*	1	3.2%

Note: *CT= Chemotherapy, *RT= Radiation Therapy, *HT= Hormonal Therapy

Figure 13: DISTRIBUTION OF PARTICIPANTS BASED ON TREATMENT MODALITY

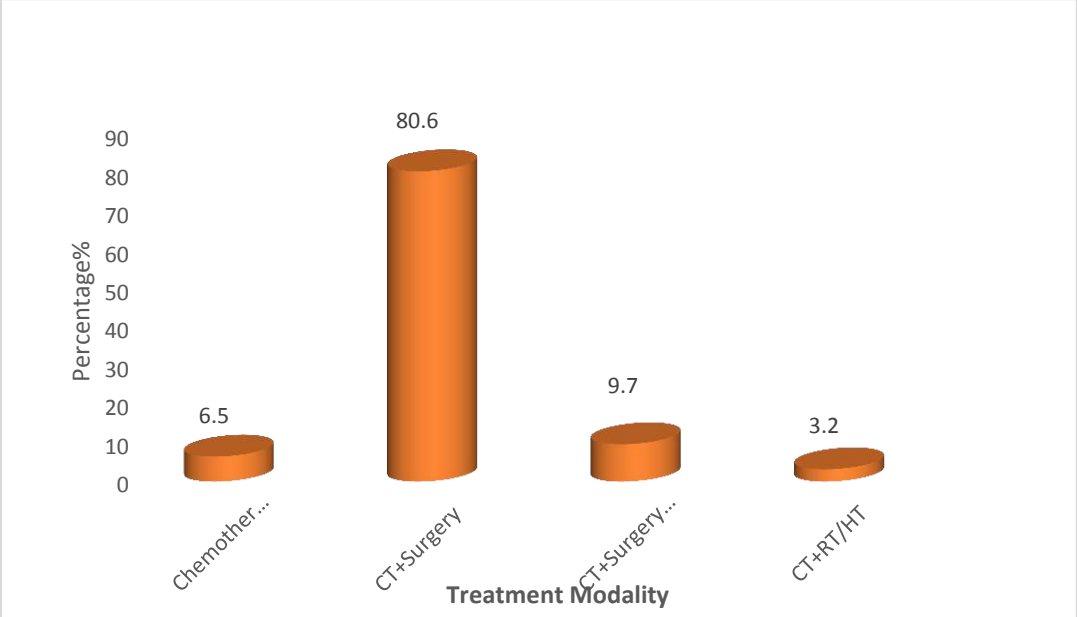

Table 12: DISTRIBUTION OF PARTICIPANTS BASED ON PHARMACOLOGICAL TREATMENT

Name of Medication	Number of Participants	Percentage (%)
Trastuzumab	7	22.6%
Trastuzumab + Docetaxel	6	19.4%
Pacilatexel	6	19.4%
Trastuzumab + Pacilatexel	2	6.5%
Adriamycin + Cyclophosphamide	9	29.0%
Others	1	3.2%

Figure 14: DISTRIBUTION OF PARTICIPANTS BASED ON PHARMACOLOGICAL TREATMENT

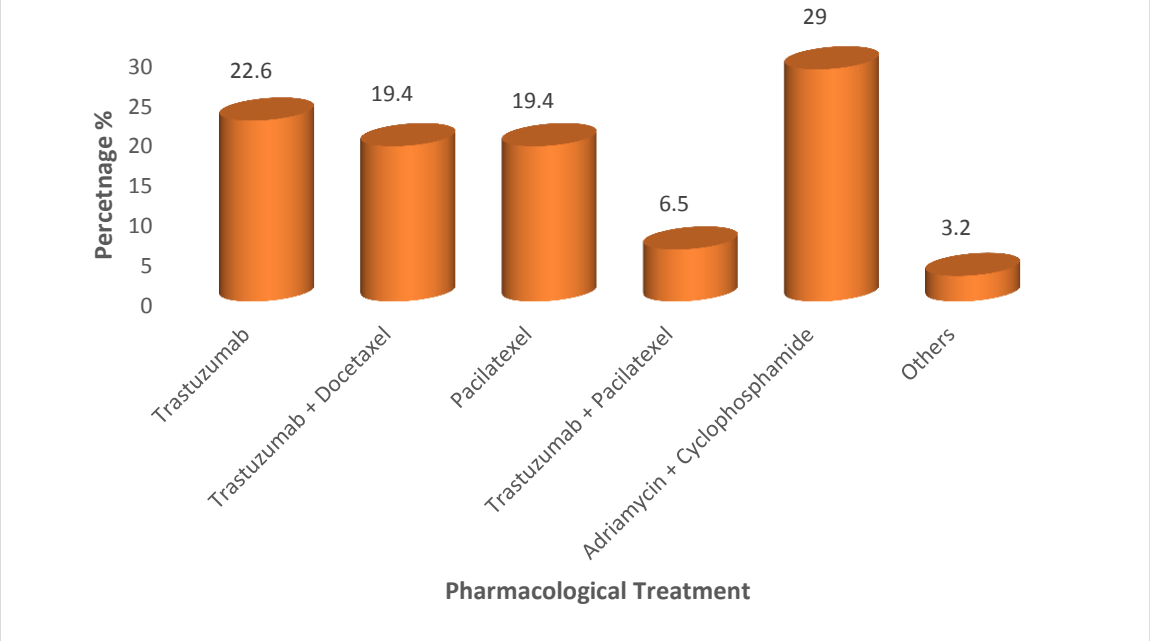

Table 13: COMPARISON OF PRE- AND POST-INTERVENTION SCORES OF BODY IMAGE DISTURBANCE:

Body Image Disturbance	Mean	Std. Deviation	t- value	p- value
PRE- BID	9.58	6.217	7.517	<0.001
POST-BID	6.61	4.638		

Figure 15: COMPARISION OF PRE AND POST INTERVENTION SCORES OF BODY IMAGE DISTURBANCES AMONG THE PARTICIPANTS:

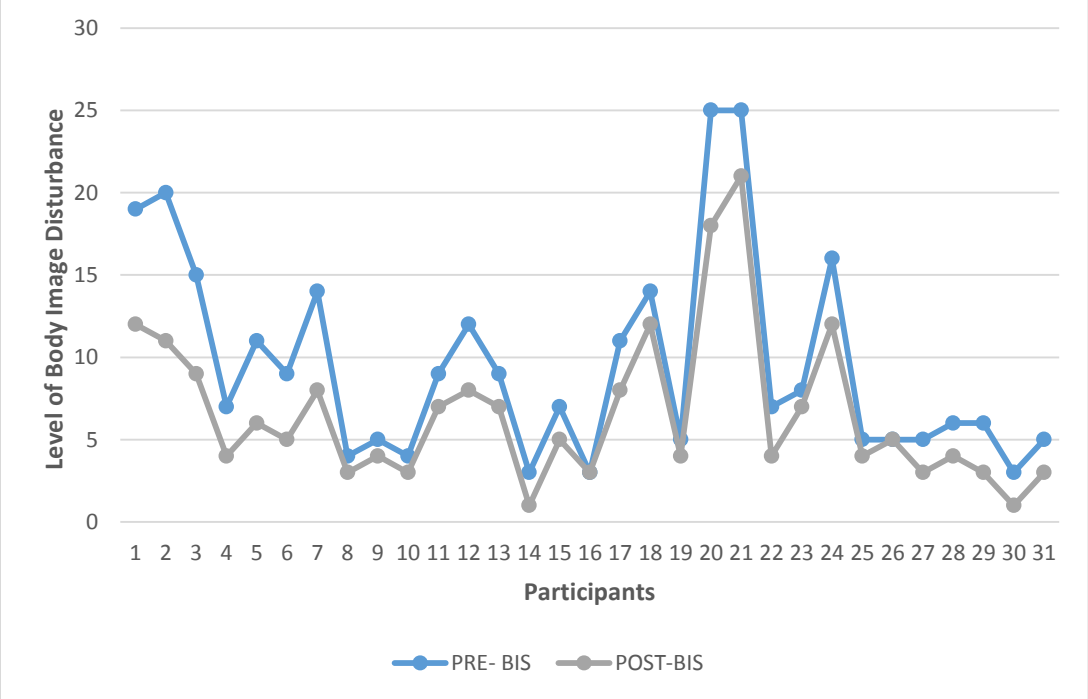

Table 14: COMPARISON OF PRE- AND POST-INTERVENTION SCORES OF HOPELESSNESS:

Hopelessness	Mean	Std. Deviation	t- value	p- value
PRE-Hopelessness	8.00	2.793	6.281	< 0.001
POST-Hopelessness	6.61	2.472		

FIGURE 16: COMPARISION OF PRE AND POST INTERVENTION SCORES OF HOPELESSNESS AMONG THE PARTICIPANTS:

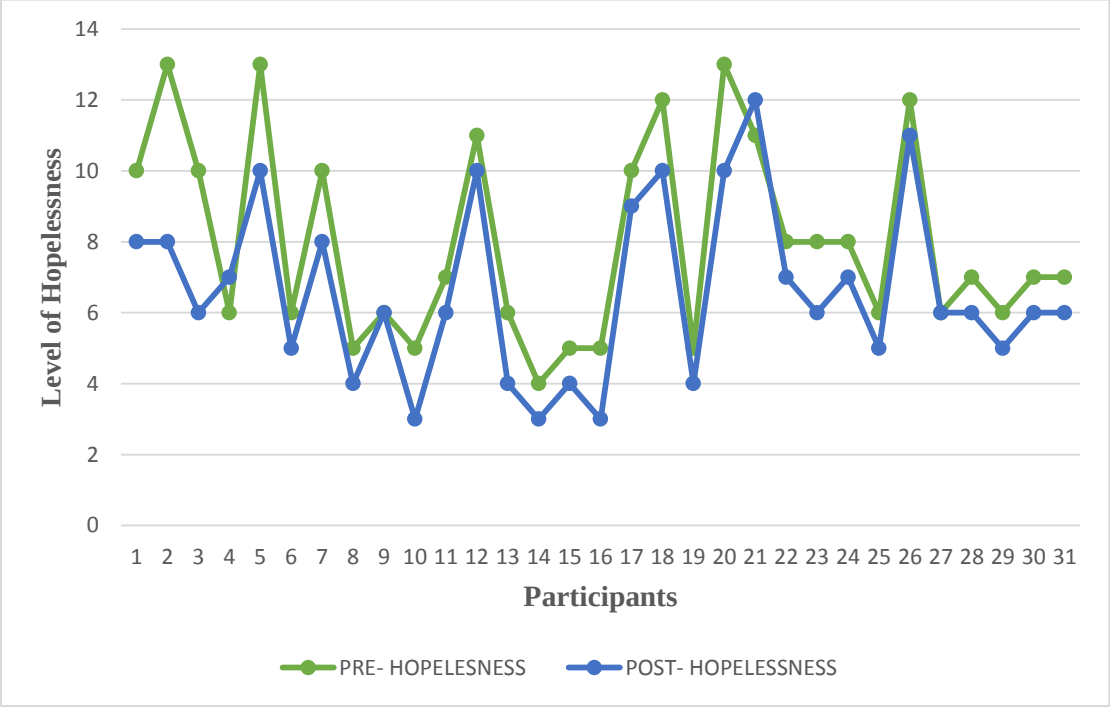

Table 15: COMPARISON OF PRE- AND POST-INTERVENTION SCORES OF COGNITIVE REAPPRAISAL:

Cognitive Reappraisal	Mean	Std. Deviation	t- value	p- value
PRE- CR	25.16	6.924	.677	0.504
POST-CR	24.94	6.255		

FIGURE 17: COMPARISION OF PRE AND POST INTERVENTION SCORES OF COGNITIVE REAPPAIRSAL AMONG THE PARTICIPANTS:

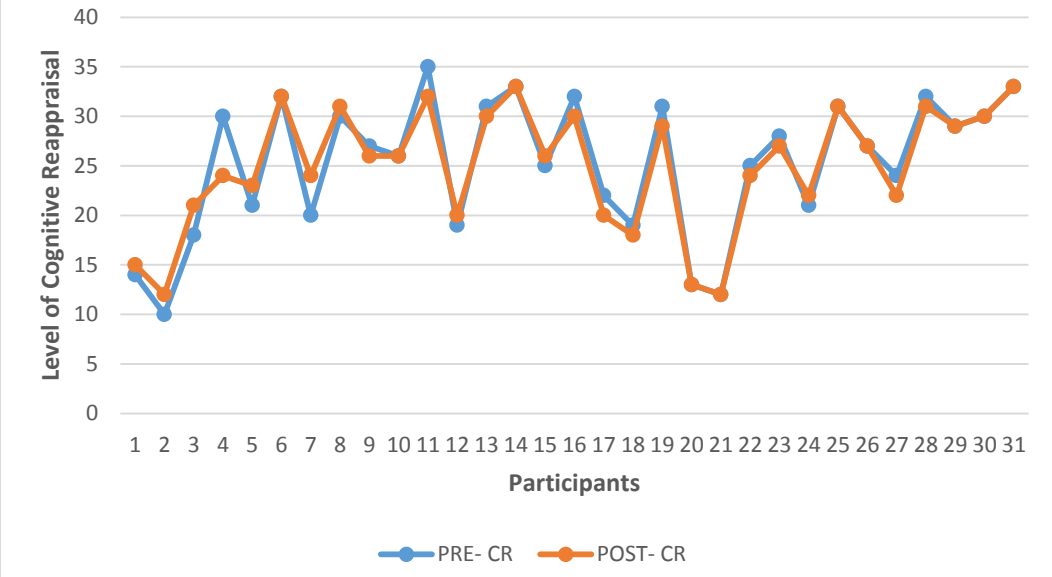

Table 16: COMPARISON OF PRE- AND POST- INTERVENTION SCORES OF EXPRESSIVE SUPPRESSION:

Expressive Suppression	Mean	Std. Deviation	t- value	p- value
PRE- ES	19.29	5.126	8.569	<0.001
POST-ES	16.29	4.466		

FIGURE 18: COMPARISION OF PRE AND POST INTERVENTION SCORES OF EXPRESSIVE SUPRESSION AMONG THE PARTICIPANTS:

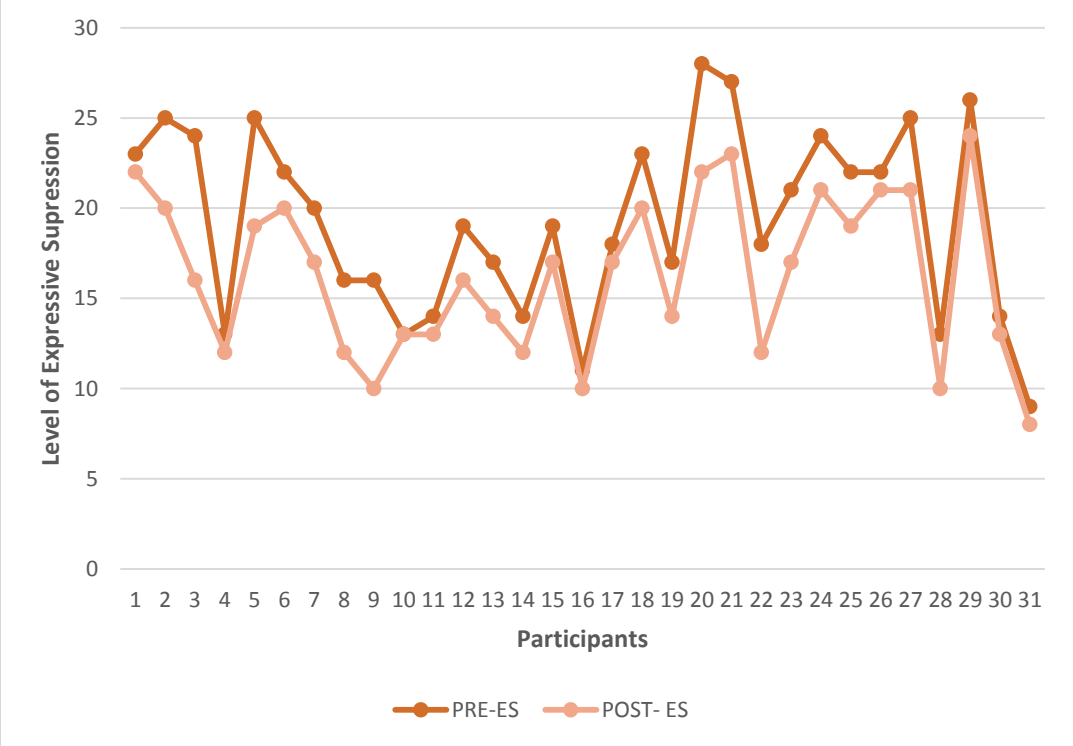

Table 17: COMPARISON OF POST-INTERVENTION AND FOLLOW UP SCORES OF BODY IMAGE DISTURBANCE:

Body Image Disturbance	Mean	Std. Deviation	t- value	p- value
POST- BID	6.61	4.638	2.633	0.013
FU -BID	6.10	4.028		

FIGURE 19: COMPARISION OF POST AND FOLLOW UP INTERVENTION SCORES OF BODY IMAGE DISTURBANCES AMONG THE PARTICIPANTS:

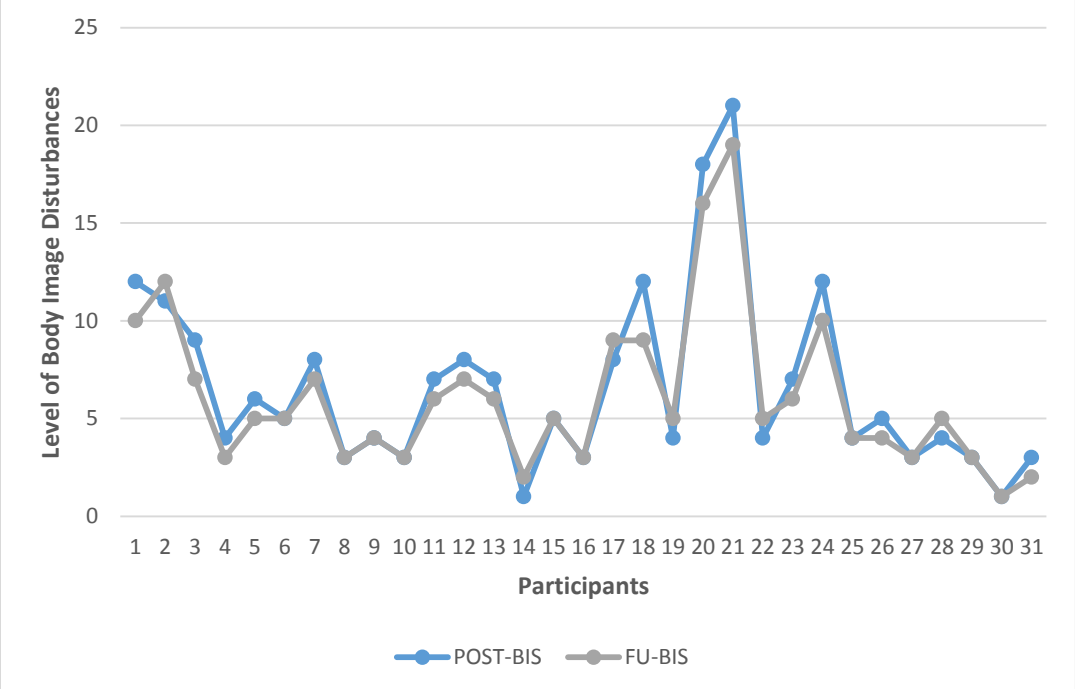

Table 18: COMPARISON OF POST-INTERVENTION AND FOLLOW UP SCORES OF HOPELESSNESS:

Hopelessness	Mean	Std. Deviation	t- value	p- value
POST-HOPELESSNESS	6.61	2.472	1.941	0.062
FU-HOPELESSNESS	6.26	1.807		

FIGURE 20: COMPARISION OF POST AND FOLLOW UP INTERVENTION SCORES OF HOPELESSNESS AMONG THE PARTICIPANTS:

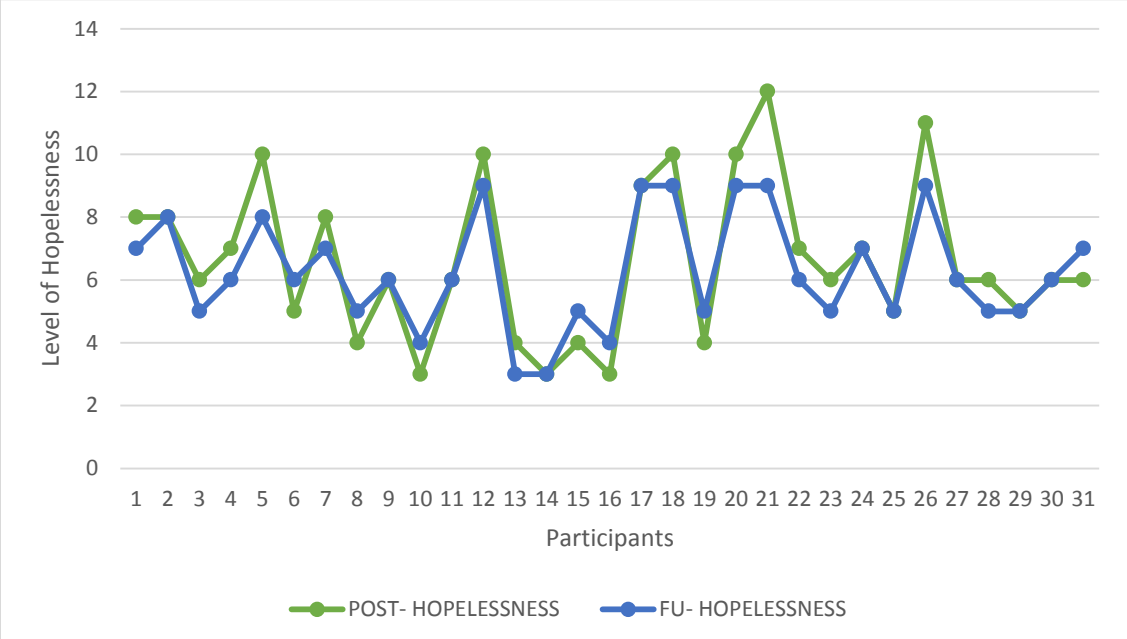

Table 19: COMPARISON OF POST-INTERVENTION AND FOLLOW UP SCORES OF COGNITIVE REAPPRAISAL:

Cognitive Reappraisal	Mean	Std. Deviation	t- value	p- value
POST- CR	24.94	6.255	-7.714	<0.001
FU -CR	27.03	5.437		

FIGURE 21: COMPARISION OF POST AND FOLLOW UP INTERVENTION SCORES OF COGNITIVE REAPPRAISAL AMONG THE PARTICIPANTS:

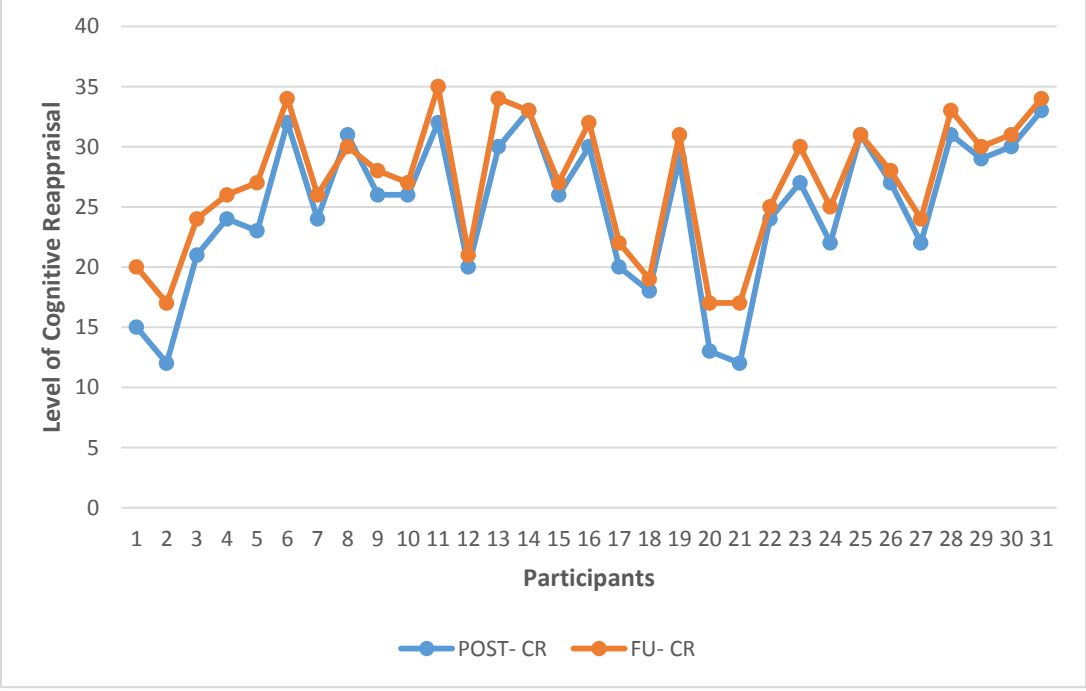

Table 20: COMPARISON OF POST- INTERVENTION AND FOLLOW UP SCORES OF EXPRESSIVE SUPPRESSION:

Expressive Suppression	Mean	Std. Deviation	t- value	p- value
POST- ES	16.29	6.255	2.942	.006
FU -ES	15.06	5.437		

FIGURE 22: COMPARISION OF POST AND FOLLOW UP INTERVENTION SCORES OF EXPRESSIVE SUPRESSION AMONG THE PARTICIPANTS:

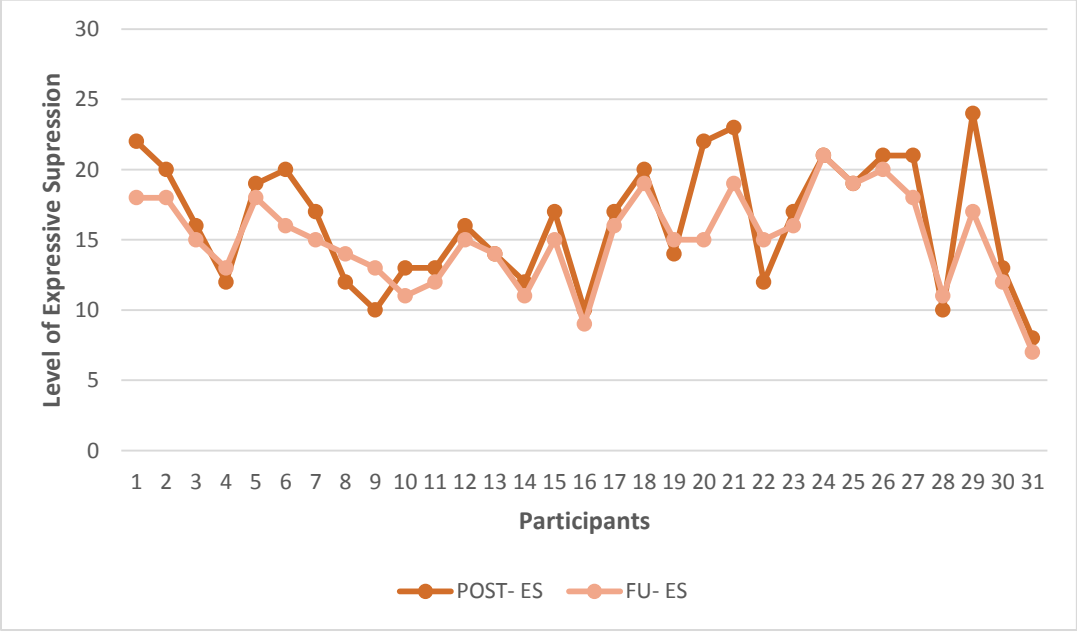

TABLE 21: CORRELATION ANALYSIS OF PRE-INTERVENTION VARIABLES.

	Pre- BID	Pre- HOPELESSNESS	Pre- CR	Pre- ES
PRE- BID	1			
PRE- HOPELESSNESS	0.747**	1		
PRE- CR	-.870**	-0.788*	1	
PRE- ES	0.676**	0.610**	-0.708**	1

**. Correlation is significant at the 0.01 level (2-tailed).

TABLE 22: CORRELATION ANALYSIS OF POST-INTERVENTION VARIABLES.

	Post- BID	Post- Hopelessness	Post- CR	Post- ES
POST- BID	1			
POST- HOPELESSNESS	0.687**	1		
POST- CR	-.817**	-0.711*	1	
POST- ES	0.593**	0.524**	-0.590**	1

**. Correlation is significant at the 0.01 level (2-tailed).

TABLE 23: CORRELATION ANALYSIS OF FOLLOW UP VARIABLES.

	Follow Up - BID	Follow Up- HOPELESSNESS	Follow Up- CR	Follow Up- ES
FU- BID	1			
FU- HOPELESSNESS	.606**	1		
FU- CR	-.754**	-.700**	1	
FU- ES	.485**	.488**	-.542**	1

**. Correlation is significant at the 0.01 level (2-tailed).

Table 24: STEPWISE REGRESSION ANALYSIS PREDICTING PRE-INTERVENTION BODY IMAGE DISTURBANCE:

Model	Predictor Variable	Beta	t- value	p-value
1.	PRE-HOPELESSNESS	.163	1.098	.282
2.	PRE-CR	-.870	-9.482	<0.001
3.	PRE- ES	.123	.942	.354

Table 25: STEPWISE REGRESSION ANALYSIS PREDICTING PRE-INTERVENTION HOPELESSNESS:

Model	Predictor Variable	Beta	t- value	p-value
1.	PRE-BID	.253	1.098	.282
2.	PRE-CR	-.870	-9.482	<0.001
3.	PRE- ES	.105	.644	.525

RESULTS

The present study was conducted to study the effect of Cognitive Behavioral Therapy on Body Image Disturbance, Emotional Regulation, and Hopelessness in Patients with Breast Cancer. The study was conducted on 31 female patients diagnosed with BC (Stage I, Stage II, Stage III) as per the oncologist, undergoing Chemotherapy or have undergone surgery, admitted to the oncology ward or visiting oncology OPD at Dayanand Medical College and Hospital. The participants were initially assessed using Body Image Scale (BIS), Beck Hopelessness Scale (BHS) and Emotional Regulation Questionnaire (ERQ). Subsequently, 8 individual CBT sessions, each lasting 40 minutes, were conducted with all participants. Following the completion of the CBT sessions, participants were reassessed for distress in body image, emotional regulation, and hopelessness using the aforementioned measurement tools. Additionally, a follow-up assessment was conducted after a 2-month interval from the post-test to evaluate the durability of the treatment's effects on the participants. Data were then analyzed with the Statistical Package for the Social Sciences (SPSS), and the findings are summarized below:

CHARACTERISTICS OF PARTICIPANTS:

Table 1 presents the overall characteristics of participants involved in the study, focusing on various demographic and factors related to BC. It provides insights into the demographic distribution, medical history, and treatment modalities of the participants.

Regarding *age distribution*, the mean age of participants was 48.3 years with a standard deviation of 8.4 years. The majority fell within the age ranges of 41-50 and 51-60, comprising 35.5% and 38.7% of the participants, respectively. *Marital status* indicated that 80.6% of the

participants were married, while 19.4% were widowed. *Education levels* varied, with the highest proportion having completed 12th grade (29.0%), followed by graduates (16.1%) and those with post-graduate qualifications (12.9%). *Occupationally*, a significant portion of the participants were unemployed (64.5%), while smaller percentages were engaged in skilled agricultural and fishery work (3.2%), clerical positions (9.7%), or professional roles (22.6%). The type of residence showed a slight majority residing in urban areas (64.5%), and the predominant family type was nuclear (80.6%). In terms of socioeconomic status, the majority fell within the upper class (48.4%) and upper middle class (35.5%) categories.

Regarding the medical aspect, participants varied in the *time since BC diagnosis*, with a relatively even distribution across different time frames. Specifically, 19.35% of participants were diagnosed within 1-6 months, 29.03% within 7-9 months, 29.03% within 10-13 months, and 22.58% within 14-18 before the study. The *phase of cancer* indicated that most participants were diagnosed with either stage II or stage III cancer, each comprising 45.2% of the participants. This suggests that the majority of participants were in advanced stages of cancer, which may have implications for their treatment options, prognosis influencing their psychological well-being, emotional regulation and body image. The *treatment modalities* varied among participants, with CT combined with surgery being the most common (80.6%). Additionally, CT alone or in combination with other treatments such as RT or HT was utilized by 6.5% of participants. Moreover, 9.7% of participants underwent a combination of CT and surgery along with other treatments such as RT or HT, while 3.2% received CT along with other treatments excluding surgery. Lastly, the *pharmacological treatment history* revealed diverse medication regimens among participants. Trastuzumab was the most prevalent medication, being administered to 25.8% of participants. Other combinations including Docetaxel, Pacilatexel, Adriamycin, and Cyclophosphamide were also utilized, with percentages ranging from 3.2% to 35.6%. This variety in

medication regimens highlights the complexity of BC treatment and the need for personalized approaches based on individual patient characteristics and BC subtypes.

AGE:

Table 2 and Figure 4 illustrates the distribution of participants based on age groups in the study. The participants were categorized into three age brackets: 30-41, 41-50, and 51-60. Among the total sample, 8 individuals fell within the 30-41 age range, representing 25.8% of the participants. The age group of 41-50 comprised 11 participants, constituting 35.5% of the total sample. Furthermore, the 51-60 age group included 12 participants, making up 38.7% of the total sample. The mean age for the group was 48.3. This table provides a clear representation of the demographic spread of participants across different age cohorts, offering insights into the age composition of the study population.

MARITAL STATUS:

Table 3 and Figure 5 depicts the distribution of participants based on their marital status. The table categorizes participants into two groups: Widowed and Married, with the corresponding number of participants and percentage within the total sample provided. Among the total participants, 6 individuals, representing 19.4% of the sample, were widowed. In contrast, the majority of participants, comprising 25 individuals, were married, constituting 80.6% of the total sample. This table offers insights into the marital status diversity among the participants, highlighting the prevalence of married individuals within the study population.

EDUCATION:

Table 4 and Figure 6 provides the distribution of participants based on their levels of education. The participants were classified into four educational categories: educated up to 10th, educated up to 12th, Graduate, and Post-Graduate. Among the total sample, 6 individuals held a 10th-grade education, representing 19.4% of the participants. Furthermore, 9 participants had completed 12th grade, comprising 29.0% of the total sample. Additionally, 5 participants were graduates, constituting 16.1% of the total sample, while 4 participants held post-graduate degrees, making up 12.9% of the total sample. This table provides a detailed view of the participants' educational backgrounds, shedding light on the educational diversity present within the study group.

OCCUPATION:

Table 5 and Figure 7 outlines the distribution of participants based on their occupations. The participants were categorized into four occupational groups: Unemployed, Agriculture, Clerk, and Professional. Among the total sample, a significant proportion, comprising 20 individuals, were unemployed, representing 64.5% of the participants. Additionally, 1 participant worked in the agriculture sector, constituting 3.2% of the total sample. Moreover, 3 participants were employed as clerks, making up 9.7% of the total sample. Finally, 7 participants held professional occupations, representing 22.6% of the total sample. This table offers valuable insights into the occupational diversity among the participants, highlighting the range of professions represented within the study population.

TYPE OF RESIDENCE:

Table 6 and Figure 8 provides an overview of the distribution of participants based on their type of residence. Participants are classified into two categories: Urban and Rural, with corresponding counts and percentages within the total sample. Among the participants, 20 individuals, representing 64.5% of the total, reside in urban areas. Conversely, 11 participants, constituting 35.5% of the total sample, reside in rural areas. This table sheds light on the geographic diversity among the participants, illustrating the distribution of participants across urban and rural settings within the study population.

FAMILY TYPE:

Table 7 and Figure 9 displays the distribution of participants based on their family types. The participants were classified into two categories: Nuclear and Joint families. Among the total sample, the majority, comprising 25 individuals, belonged to nuclear families, representing 80.6% of the participants. Additionally, six participants were from joint families, constituting 19.4% of the total sample. This table provides valuable insights into the family structures represented within the study population, highlighting the prevalence of nuclear families among the participants.

SOCIO- ECONOMIC STATUS:

Table 8 and Figure 10 provides the distribution of participants based on their SES. Participants were categorized into four socio-economic classes: Upper Class, Upper-Middle Class, Lower-Middle Class, and Upper-Lower Class. Among the total sample, the largest group consisted of individuals from the Upper Class, with 15 participants, representing 48.4% of the

total. The Upper-Middle Class followed, with 11 participants, making up 35.5% of the total sample. Additionally, four participants belonged to the Lower-Middle Class, constituting 12.9% of the total sample, while one participant was classified as Upper-Lower Class, accounting for 3.2% of the total sample. This table offers insights into the SES diversity among the participants, showcasing the distribution across different economic strata within the study population.

TIME SINCE DIAGNOSIS:

Table 9 and Figure 11 provides the distribution of participants on the basis of time since diagnosis of BC. A substantial portion, comprising 32.3%, were diagnosed within 7-9 months prior to the study, with 10 individuals falling into this category. Additionally, 29% of participants, totaling 9 individuals, were diagnosed between 10-13 months ago. Similarly, 19.4% (6 individuals) were diagnosed within 1-6 months, while another 19.4% (6 individuals) were diagnosed within 14-18 months prior to the study. This distribution underscores the importance of considering the temporal aspect of diagnosis when studying the experiences and outcomes of individuals with BC, as the duration since diagnosis can impact treatment trajectories, psychological adjustment, and healthcare needs.

PHASE OF BREAST CANCER:

Table 10 and Figure 12 outlines the distribution of participants based on the phase of BC they were diagnosed with. The phases are categorized into three groups: Phase I, Phase II, and Phase III. Among the total sample, 3 participants were diagnosed with Phase I BC, representing 9.7% of the participants. The majority of participants, 14 individuals, were

diagnosed with Phase II BC, making up 45.2% of the total sample. Similarly, another 14 participants were diagnosed with Phase III BC, also constituting 45.2% of the total sample. This table provides valuable insights into the distribution of BC phases among the participants, aiding in understanding the severity and stage of the disease within the study population.

TREATMENT MODALITY:

Table 11 and Figure 13 provides the distribution of participants based on the treatment modalities they received. The treatment modalities are categorized into four groups: CT, CT + Surgery, CT + Surgery + HT/RT, and CT + HT/ RT. Among the total sample, two participants underwent CT alone, representing 6.5% of the participants. The majority of participants, 25 individuals, underwent a combination of CT and surgery, making up 80.6% of the total sample. Additionally, three participants received a combination of CT, surgery, and HT/RT, constituting 9.7% of the total sample. Finally, one participant underwent CT along with HT/RT, accounting for 3.2% of the total sample. This table provides valuable insights into the treatment modalities employed among the participants, showcasing the prevalence of various treatment combinations used in managing BC within the study population.

PHARMACOLOGICAL TREATMENT:

Table 11 and Figure 12 provides the distribution of participants based on their pharmacological treatment history for BC. The table categorizes medications along with the number of participants who received each medication and the corresponding percentage within the total sample. Trastuzumab, a targeted therapy, was administered to seven participants, representing 22.6% of the total sample. Additionally, six participants (19.4%) received a combination of Trastuzumab and Docetaxel, while the

same number received Paclitaxel alone. Two participants (6.5%) underwent treatment with a combination of Trastuzumab and Paclitaxel. Notably, Adriamycin and Cyclophosphamide, another CT combination, were administered to nine participants, constituting 29.0% of the total sample. This comprehensive overview of pharmacological treatment history highlights the diverse approaches employed in managing BC within the study population, shedding light on the prevalence of specific medications and combination therapies utilized in clinical practice and providing valuable insights into the prevailing trends and practices in pharmacotherapy for breast cancer.

COMPARISON OF PRE- AND POST-INTERVENTION SCORES OF BODY IMAGE DISTURBANCE:

Table 14 and Figure 13 provides the distribution of differences in Body Image Disturbance scores (BID) between the pre- and post-intervention groups, including the mean values, standard deviations, t-values, and p-values. Initially, participants exhibited a mean BID score of 9.58, indicating a significant level of distress regarding body image, with a notable degree of variability as indicated by the standard deviation of 6.217. However, following CBT, there was a noticeable improvement, with the mean BID score decreasing to 6.61. This reduction suggests a positive shift in participants' perceptions of their bodies. Moreover, the decreased standard deviation of 4.638 indicates a more consistent response among participants post-intervention. Statistical analysis further supports these observations, revealing a substantial and statistically significant difference between the pre- and post-intervention BID scores, with a calculated t-value of 7.517 and a corresponding p-value of 0.001. These findings underscore the CBT intervention's effectiveness in ameliorating participants' perceptions of body image.

COMPARISON OF PRE- AND POST-INTERVENTION SCORES OF HOPELESSNESS:

Table 15 and Figure 14 provides the distribution of differences in Hopelessness between the pre- and post-intervention groups, including the mean values, standard deviations, t-values, and p-values. Initially, participants reported a mean hopelessness score of 8.00 before the intervention, indicative of a significant degree of distress and pessimism regarding their circumstances. The accompanying standard deviation of 2.793 suggests some variability in the severity of hopelessness among participants within the pre-intervention group. However, following the CBT intervention, there was a noticeable improvement in participants' outlook, with the mean hopelessness score decreasing to 6.61. This reduction signifies a tangible alleviation of feelings of hopelessness among participants. Moreover, the decreased standard deviation of 2.472 post-intervention suggests a more consistent response across participants, indicating a collective improvement in hopelessness levels. Statistical analysis further reinforces these observations, with a calculated t-value of 6.281 and a corresponding p-value of 0.001, highlighting the significant difference between the pre- and post-intervention hopelessness scores. These findings suggest that the CBT intervention effectively alleviated feelings of hopelessness among participants, demonstrating its capacity to enhance emotional well-being and foster positive psychological outcomes.

COMPARISON OF PRE- AND POST-INTERVENTION SCORES OF COGNITIVE REAPPRAISAL:

Table 16 and Figure 15 provides the distribution of differences in Cognitive Reappraisal between the pre- and post-intervention groups, including the mean values, standard deviations, t-values, and p-values.

Initially, participants in the pre-intervention group exhibited a mean CR score of 25.16, with a standard deviation of 6.924. After the intervention, there was a slight decrease in the mean CR score to 24.94, accompanied by a standard deviation of 6.255. However, statistical analysis revealed a non-significant difference, with a t-value of .677 and a p-value of 0.504. These findings suggest that the intervention did not elicit a significant change in participants' CR abilities. Despite the slight decrease observed in the post-intervention group, it was not statistically meaningful, indicating that the intervention may not have effectively influenced participants CR strategies.

COMPARISON OF PRE- AND POST- INTERVENTION SCORES OF EXPRESSIVE SUPPRESSION:

Table 17 and Figure 16 provides the distribution of differences in Expressive Suppression between the pre- and post-intervention groups, including the mean values, standard deviations, t-values, and p-values. Initially, participants demonstrated a notable tendency towards suppressing their emotions, with a mean score of 19.29 and a standard deviation of 5.126 before the intervention. However, following the intervention, there was a marked decrease in ES, with the mean score decreasing to 16.29 and a standard deviation of 4.466. This decrease indicates that participants were better able to openly express their emotions. Statistical analysis further underscores these observations, with a calculated t-value of 8.569 and a corresponding p-value of 0.001, indicating a statistically significant difference between the pre- and post-intervention expressive suppression scores. Overall, these findings highlight the positive impact of the CBT intervention in fostering a more open and authentic expression of emotions among participants, thus contributing to their overall emotional regulation.

COMPARISON OF POST-INTERVENTION AND FOLLOW UP SCORES OF BODY IMAGE DISTURBANCE:

Table 18 and Figure 17 provides the distribution of differences in Body Image Disturbances (BID) between the post-intervention and follow-up groups, including the mean values, standard deviations, t-values, and p-values. Initially, the post-intervention group displayed a mean BID score of 6.61, with a standard deviation of 4.638. Subsequently, during the follow-up assessment, the mean BID score slightly decreased to 6.10, with a standard deviation of 4.028, suggesting a potential trend towards improvement in body image perceptions over time. Statistical analysis underscored this change, revealing a significant difference between post-intervention and follow-up BID scores, with a t-value of 2.633 and a corresponding p-value of 0.013. This suggests that there was a modest reduction in body image disturbances from the post-intervention to the follow-up period and further intervention may still be warranted to address lingering concerns and promote sustained improvements in participants' perceptions of body image.

COMPARISON OF POST-INTERVENTION AND FOLLOW UP SCORES OF HOPELESSNESS:

Table 19 and Figure 18 provides the distribution of differences in hopelessness between the post-intervention and follow-up groups, encompassing mean values, standard deviations, t-values, and p-values. Initially, the post-intervention group displayed a mean hopelessness score of 6.61, with a standard deviation of 2.472. Subsequently, during the follow-up evaluation, the mean hopelessness score slightly decreased to 6.26, accompanied by a standard deviation of 1.807. While this reduction suggests a potential trend towards improvement in feelings of hopelessness over time, it falls short of statistical significance, as

evidenced by a t-value of 1.941 and a corresponding p-value of 0.062. This indicates that the observed difference in hopelessness scores between the post-intervention and follow-up periods may not be statistically significant. Further intervention may be necessary to comprehensively address and alleviate feelings of hopelessness among participants in the long term.

COMPARISON OF POST-INTERVENTION AND FOLLOW UP SCORES OF COGNITIVE REAPPRAISAL:

Table 20 and Figure 19 provides the distribution of differences in Cognitive Reappraisal (CR) between the post-intervention and follow-up groups, encompassing mean values, standard deviations, t-values, and p-values. Initially, following the intervention, the post-intervention group displayed a mean CR score of 24.94, with a standard deviation of 6.255. Subsequently, during the follow-up assessment, the mean CR score slightly increased to 27.03, with a standard deviation of 5.437. This increase suggests a potential enhancement in participants' cognitive reappraisal abilities over time. Statistical analysis corroborated this change, revealing a significant difference between post-intervention and follow-up CR scores, with a t-value of -7.714 and a corresponding p-value of 0.001. This indicates a statistically significant improvement in cognitive reappraisal from the post-intervention to the follow-up period. These findings suggest that the CBT intervention may have had a lasting positive impact on participants' cognitive reappraisal skills, contributing to their ability to manage and regulate their emotions and situations more effectively over time.

COMPARISON OF POST- INTERVENTION AND FOLLOW UP SCORES OF EXPRESSIVE SUPPRESSION:

Table 21 and Figure 20 provides the distribution of differences in Expressive Suppression (ES) between the post-intervention and follow-up groups, including mean values, standard deviations, t-values, and p-values. Initially, following the intervention, the post-intervention group exhibited a mean ES score of 16.29, with a standard deviation of 6.255. Subsequently, during the follow-up assessment, the mean ES score decreased slightly to 15.06, with a standard deviation of 5.437, indicating a potential trend towards reduced expressive suppression over time. Further statistical analysis confirmed this observation, showing a significant difference between the ES scores after the intervention and those at follow-up, with a t-value of 2.942 and a corresponding p-value of 0.006. This signifies a statistically meaningful improvement in expressive suppression from the post-intervention to the follow-up period. These findings suggest that the CBT intervention may have had a lasting positive impact on participants' ability to express their emotions more openly over time, contributing to their emotional regulation and overall well-being.

CORRELATION MATRIX OF PRE-INTERVENTION VARIABLES:

Table 22 provides a correlation matrix exploring the relationships among different variables measured in the post-intervention phase, including Hopelessness (PRE-HOPELESSNESS), Body Image Disturbances (PRE-BID), Cognitive Reappraisal (PRE-CR), and Expressive Suppression (PRE-ES). Each cell in the matrix represents the Pearson correlation coefficient between two variables, along with the associated p-value indicating the significance of the correlation.

There exists a strong positive correlation between pre-Hopelessness and

pre-CR ($r = 0.747$, $p < 0.01$), indicating that higher levels of hopelessness were associated with greater tendencies towards cognitive reappraisal. Conversely, pre-CR showed a significant negative correlation with pre-ES scores ($r = -0.708$, $p < 0.01$), suggesting that individuals who engaged more in CR tended to suppress their emotions less. Additionally, a strong negative correlation emerged between pre- BID and pre-Cognitive Reappraisal ($r = -0.870$, $p < 0.01$), indicating that higher levels of BID were associated with lower tendencies towards cognitive reappraisal. Finally, pre- ES scores demonstrated a significant positive correlation with pre-BID scores ($r = 0.676$, $p < 0.01$), suggesting that individuals with higher levels of BID were more inclined to suppress their emotions.

These findings underscore the intricate interplay between psychological variables before intervention, shedding light on potential avenues for therapeutic intervention and further research.

CORRELATION MATRIX OF POST-INTERVENTION VARIABLES:

Table 23 provides a correlation matrix exploring the relationships between different variables measured in the post-intervention phase, including Hopelessness (POST-HOPELESSNESS), Body Image Disturbances (POST-BID), Cognitive Reappraisal (POST-CR), and Expressive Suppression (POST-ES).

Firstly, examining POST-HOPELESSNESS, it shows a moderately strong positive correlation with POST-BID ($r = 0.687$, $p < 0.001$), suggesting a significant relationship wherein higher levels of hopelessness correspond to greater BID. Similarly, POST-HOPELESSNESS displays a strong negative correlation with POST-CR ($r = -0.711$, $p < 0.001$), indicating a significant association where increased hopelessness coincides with lower CR abilities. Conversely, POST-HOPELESSNESS exhibits a moderate positive correlation with POST-ES ($r = 0.524$, $p = 0.002$), suggesting a

significant link between heightened hopelessness and increased ES tendencies. Moving to POST-BID, it demonstrates a strong negative correlation with POST-CR ($r = -0.817$, $p < 0.001$) and a moderate positive correlation with POST-ES ($r = 0.593$, $p < 0.001$), both indicating significant relationships. These associations suggest that higher levels of BID are significantly linked to lower CR abilities and heightened ES. Regarding POST-CR, it exhibits a strong negative correlation with POST-ES ($r = -0.590$, $p < 0.001$), implying that higher CR abilities are associated with lower ES tendencies.

The correlations observed in the post-intervention phase are statistically significant, indicating meaningful relationships among hopelessness, body image disturbances, cognitive reappraisal, and expressive suppression.

CORRELATION MATRIX OF FOLLOW UP-INTERVENTION VARIABLES:

Table 24 provides a correlation matrix provided examines the relationships between variables measured in the follow-up (FU) phase, including Hopelessness (FU-HOPELESSNESS), Body Image Disturbances (FU-BID), Cognitive Reappraisal (FU-CR), and Expressive Suppression (FU-ES). Each correlation coefficient is accompanied by its respective p-value, indicating the significance of the correlation.

Starting with FU-HOPELESSNESS, it shows a moderately strong positive correlation with FU-BID ($r = 0.606$, $p < 0.001$) and a strong negative correlation with FU-CR ($r = -0.700$, $p < 0.001$), both of which are statistically significant at the 0.01 level. Additionally, FU-HOPELESSNESS exhibits a moderate positive correlation with FU-ES ($r = 0.488$, $p = 0.005$), also significant at the 0.01 level. These correlations suggest significant relationships wherein higher levels of hopelessness are associated with greater BID, lower CR abilities, and heightened ES tendencies. Moving to

FU-BID, it demonstrates a strong positive correlation with FU-CR ($r = -0.754$, $p < 0.001$) and a moderate positive correlation with FU-ES ($r = 0.485$, $p = 0.006$), both significant at the 0.01 level. These associations suggest significant relationships wherein higher levels of BID are linked to lower CR abilities and increased ES tendencies. Regarding FU-CR, it exhibits a strong negative correlation with FU-ES ($r = -0.542$, $p = 0.002$), significant at the 0.01 level. This indicates a significant association where higher cognitive reappraisal abilities coincide with lower expressive suppression tendencies. In summary, the correlations noted in the follow-up phase exhibit statistical significance, underscoring meaningful associations among hopelessness, body image disturbances, cognitive reappraisal, and expressive suppression.

STEPWISE REGRESSION ANALYSIS PREDICTING PRE- BODY IMAGE DISTURBANCES:

Table 25 presents a stepwise regression analysis that was conducted to explore the predictors of pre-BID scores. Three predictor variables were included in the analysis: pre-hopelessness, pre-CR, and pre-ES. The analysis revealed that pre-CR emerged as a significant predictor of pre-BID scores ($\beta = -.870$, $t = -9.482$, $p < 0.001$). This reveals that individuals with higher levels of Cognitive Reapraisal (CR) before the intervention typically had lower pre-intervention Body Image Disturbance (BID) scores. However, pre-intervention levels of hopelessness ($\beta = .163$, $t = 1.098$, $p = .282$) and Expressive Suppression (ES) ($\beta = .123$, $t = .942$, $p = .354$) did not show a statistically significant correlation with pre-BID scores. These findings indicate that hopelessness and ES prior to the intervention were not reliable predictors of subsequent BID scores. These findings indicate that cognitive reappraisal skills prior to CBT may play a crucial role in influencing individuals' pre-existing levels of BID. However, pre-existing levels of hopelessness and ES may not have a significant impact on

individuals' BID scores.

STEPWISE REGRESSION ANALYSIS PREDICTING PRE-HOPELESSNESS:

Table 26 shows a stepwise regression analysis that was conducted to explore the predictors of pre-Hopelessness scores. The results revealed that pre-CR emerged as a significant predictor of pre-hopelessness (β = -.870, t = -9.482, $p < 0.001$). This indicates that individuals who exhibited higher levels of cognitive reappraisal prior to CBT tended to report lower levels of pre-hopelessness. However, pre-BIS (β = .253, t = 1.098, p = .282) and pre-ES (β = .105, t = .644, p = .525) did not show a significant association with pre-hopelessness. These findings indicate that CR skills prior to CBT may have a notable impact on individuals' pre-existing levels of hopelessness. Conversely, pre-existing levels of BID and ES did not appear to significantly influence pre-hopelessness scores.

DISCUSSION

The primary objective of this study was to investigate the effects of Cognitive Behavioral Therapy (CBT) on Body Image Disturbance, Emotional Regulation, and Hopelessness among female Breast Cancer patients. 31 participants diagnosed with Stage I, Stage II, or Stage III BC and undergoing Chemotherapy or having undergone surgery were recruited from Dayanand Medical College and Hospital. Initial evaluations were conducted using the Body Image Scale (BIS), Beck Hopelessness Scale (BHS), and Emotional Regulation Questionnaire (ERQ). Subsequently, participants engaged in 8 individual CBT sessions, each lasting 40 minutes. Post-intervention assessments were then administered using the same measurement tools. Furthermore, a follow-up assessment was conducted after a 2-month interval to evaluate the sustainability of the treatment's effects. Statistical analysis was conducted using the Statistical Package for the Social Sciences (SPSS), 2017. The findings are discussed below in the context of existing research evidence.

DISTRIBUTION OF PARTICIPANTS BASED ON AGE:

The study was conducted on adult participants aged 18-60 years. The youngest participant was 30 years old, and the oldest was 60 years old. The mean age of the participants was 48 years old, with a standard deviation of 8.49. The age distribution demonstrated a relatively balanced representation across the three age categories: 30-41, 41-50, and 51-60 years. However, there was a slight skew towards older age groups, with 35.5% of participants falling in the 41-50 age range and 38.7% falling in the 51-60 age range, compared to 25.8% in the 30-41 age range. This distribution reflected the typical age range for the onset of BC diagnosis, which tends to increase with age, particularly among women over 40 years old. The higher percentage of participants in the 41-60 age range aligned with existing epidemiological data on BC incidence, where the risk increases significantly after the age of 40. [291] These findings corroborated

with previous literature evidence. [292] [285]

DISTRIBUTION OF PARTICIPANTS BASED ON MARITAL STATUS:

The distribution of participants based on marital status provides crucial demographic insights into the study population, shedding light on the social support systems and potential psychosocial factors affecting breast cancer (BC) patients undergoing treatment. Among the participants, the majority (80.6%) are married, indicating a significant proportion of individuals in the study are currently in committed relationships. Conversely, a smaller proportion of participants (19.4%) are widowed, reflecting the unique challenges faced by individuals who have lost their spouses. Comparable observations regarding marital status among BC patients undergoing treatment were reported by Chang et al. (2014) [293] and Onyedibe et al. (2020). [250] Both studies identified similar distributions of participants based on marital status, highlighting the prevalence of married individuals within their respective study populations. These findings underscore the importance of considering marital status as a significant demographic factor in understanding the psychosocial dynamics and support networks available to patients throughout the cancer treatment continuum.

DISTRIBUTION OF PARTICIPANTS BASED ON EDUCATION:

In this study, the inclusion criteria for participants were set to ensure they possessed at least a primary level of education. This criterion was established to ensure that participants could effectively engage with the therapy materials, communicate, complete assignments between sessions, and comprehend psychological concepts. Across the participant pool, variability in education levels was observed. The largest proportion had completed education up to the 12th grade, accounting for 29.0% of the sample. Following this, participants with education up to the 10th grade constituted 19.4% of the sample. Notably, there was also a significant representation of participants with higher education

qualifications, with graduates and post-graduates comprising 16.1% and 12.9% of the sample, respectively. The variation in education levels underscores the importance of tailoring psychological interventions and support services to accommodate different levels of health literacy and cognitive abilities among BC patients. By acknowledging and addressing these educational differences, healthcare providers can enhance the effectiveness of interventions aimed at promoting psychological well-being and adjustment among individuals facing BC.

DISTRIBUTION OF PARTICIPANTS BASED ON OCCUPATION:

The majority of participants, comprising 64.5%, were unemployed, consistent with findings from studies by Savani et al. (2023) [294] and Chang et al. (2014) [293]. Many were homemakers, but four had ceased working due to worsening illness. Unemployment among BC patients often arises from the demanding treatment schedules, which disrupt work due to physical and emotional strain. Cultural factors, including stigma and misconceptions about cancer, may exacerbate discrimination or job loss. Additionally, concerns about body image, social embarrassment, anxiety, and fear of infections can further deter employment. This underscores the intricate interplay of medical, emotional, and cultural challenges facing BC patients in the workforce. Furthermore, the presence of only one participant (3.2%) from the agriculture sector suggests a potential lack of representation from rural or agricultural communities. In contrast, participants in clerical and professional occupations make up smaller yet notable proportions of the sample. Clerical workers account for 9.7% of participants. Meanwhile, 22.6% of participants are classified as professionals, indicating a diverse range of occupations within this category, including healthcare professionals, educators, and others. Recognizing the diverse occupational backgrounds of BC patients is vital for crafting tailored psychotherapeutic interventions. Addressing specific concerns related to employment, cultural perceptions, and societal

expectations can enhance patient engagement and treatment outcomes. Incorporating these factors into therapy fosters a more supportive and inclusive environment, ultimately leading to more effective psychosocial support for individuals facing BC.

DISTRIBUTION OF PARTICIPANTS BASED ON FAMILY TYPE:

The distribution of participants based on family type, with nuclear families representing 80.6% and joint families comprising 19.4%, plays a pivotal role in the psychological adjustment to BC. In nuclear families, patients may experience increased autonomy but possibly face a shortage of emotional support, whereas joint families provide a broader support network though they may introduce complications due to family dynamics. This is similar to the findings reported by (Mukherjee et al., 2018) [295]. Understanding the impact of family structure is crucial for creating more effective and culturally sensitive interventions to support BC patients' psychological adjustment.

DISTRIBUTION OF PARTICIPANTS BASED ON SOCIO-ECONOMIC STATUS:

The distribution of participants across socio-economic statuses offers valuable insights into the composition of the sample. Almost half of the participants belong to the upper class, constituting 48.4% of the sample. Meanwhile, the upper-middle class comprises 35.5%, showing a substantial presence. The lower-middle class, with 12.9%, follows, albeit with a smaller share. Notably, only one participant, or 3.2%, hails from the upper-lower class. Similar findings regarding the socio-economic status of patients with BC undergoing treatment were found in Mukherjee et al., 2018. [295] The disproportionate representation of individuals from the upper class suggests that the findings might not accurately reflect the experiences and challenges faced by individuals from less privileged backgrounds. Given that nearly half of the participants are from the upper

class, there's a risk of bias toward perspectives and experiences more commonly associated with economic privilege. Moreover, the underrepresentation of individuals from the lower class is noteworthy. This indicates that the study might lack insights from individuals facing greater financial challenges, who may have distinct needs and responses to CBT interventions compared to those from higher socio-economic strata.

DISTRIBUTION OF PARTICIPANTS BASED ON TIME SINCE DIAGNOSIS:

The distribution of participants based on time since diagnosis reveals a varied representation across different stages of the cancer journey. Approximately 19.4% of participants were diagnosed within the first 6 months, likely still adjusting to the shock of diagnosis and undergoing initial treatments. The largest proportion (32.3%) were diagnosed between 7 to 9 months ago, navigating ongoing treatments and follow-up appointments. Those diagnosed between 10 to 13 months ago constituted 29% of the sample, possibly transitioning from active treatment to survivorship care or facing decisions about additional interventions. Lastly, individuals diagnosed between 14 to 18 months ago represented 19.4% of the sample, potentially further along in their survivorship journey.

DISTRIBUTION OF PARTICIPANTS BASED ON PHASE OF BREAST CANCER:

The study's participant distribution reflects a robust representation of individuals at intermediate and advanced stages of BC, mirroring the typical progression of diagnoses. Phase II and Phase III cases comprise the majority of the sample, each comprising 45.2% of the sample. However, Phase I cases, representing early-stage BC, constitute only 9.7% of the sample. While Phase I cases, representing early-stage BC, constitute a smaller proportion of the sample, this presents an opportunity rather than a limitation. It suggests a potential area for future research

focus, where interventions such as cognitive-behavioral therapy (CBT) could be explored more deeply to address the unique needs of individuals in the early stages of BC. Similar findings regarding the phase of BC were found in studies by Chang et al. (2014) [293], Onyedibe et. al, (2020) [250], and An et al., 2022. [292]

DISTRIBUTION OF PARTICIPANTS BASED ON TREATMENT MODALITY:

The treatment modalities among the participants were varied, reflecting the diverse approaches to managing BC. The majority of participants (80.6%) underwent a combined treatment of CT and surgery, highlighting the common practice of utilizing both modalities to combat the disease comprehensively. This approach underscores the importance of addressing both systemic and localized aspects of BC treatment. A smaller proportion of participants (6.5%) received CT alone, indicating that some individuals may undergo systemic treatment before or without surgical intervention. Additionally, a subset of participants (9.7%) underwent CT in combination with surgery and other adjunct therapies such as hormonal therapy or radiation therapy. This multidisciplinary approach signifies the personalized nature of BC treatment, where interventions are tailored to individual patient needs and disease characteristics. Furthermore, the presence of participants (3.2%) receiving CT along with other adjunct therapies underscores the complexity of treatment regimens in managing BC. The research conducted by Zhao et al. (2022) [292] and Onyedibe et al. (2020) [250] support these observations, showing similar patterns in the distribution of BC phases. This alignment across multiple studies underscores the reliability and consistency of our findings regarding the prevalence of different phases of BC within the scientific literature.

DISTRIBUTION OF PARTICIPANTS BASED ON PHARMACOLOGICAL TREATMENT HISTORY:

The distribution of participants based on their pharmacological treatment history offers valuable insights into the diverse treatment regimens employed in managing BC, particularly among patients undergoing CT or having undergone surgery. Among the participants, the most commonly reported medication regimen is Adriamycin + Cyclophosphamide, with 9 participants, constituting 29.0% of the sample. Trastuzumab, both alone and in combination with Docetaxel or Pacilatexel, is another prevalent medication regimen, collectively accounting for 48.5% of the sample. Pacilatexel, administered alone, represents 19.4% of the sample, indicating its significant utilization as a standalone CT agent in BC treatment. The relatively lower representation of Trastuzumab + Pacilatexel (6.5%) suggests a less common but still noteworthy treatment approach within the study population. Overall, this distribution of pharmacological treatment histories is essential as it highlights the heterogeneity of treatment experiences.

COMPARISON OF PRE- AND POST-INTERVENTION SCORES OF BODY IMAGE DISTURBANCE:

The distribution of differences in body image disturbances between the pre-and post-treatment groups, as indicated by mean scores and standard deviations, reveals significant improvements following intervention.

Before the CBT sessions, participants had an average PRE-BID (Pre-Intervention Body Image Disturbance) score of 9.58, with a standard deviation of 6.217. After completing the intervention, this score fell to 6.61, with a lowered standard deviation of 4.638. The difference in mean scores between the pre-treatment and post-treatment groups was statistically significant, marked by a t-value of 7.517 and a p-value of 0.001. These findings suggest that CBT effectively mitigated body image disturbances among participants undergoing treatment for BC. The decrease in mean

score from pre- to post-intervention indicates an improvement in participants' perceptions of their body image and self-image following the intervention. The statistically significant t-value and low p-value further support the effectiveness of the intervention in reducing body image disturbances. The magnitude of the difference, coupled with the statistical significance, underscores the clinical relevance of the therapuetic intervention in addressing this aspect of psychosocial distress among BC patients. The standard deviations provide insight into the variability of individual responses within each group. The decreased standard deviation in the post-treatment group suggests greater homogeneity in body image disturbance scores following the intervention, indicating a more consistent positive effect among participants.

These findings underscore the significant impact of CBT on reducing post-intervention body image disturbances. They are consistent with research conducted by Negar Bateni Moghadam et al. (2023) [296], whose covariance analysis demonstrated a significant effect of CBT on disease perception, body image, and fear of disease recurrence among women with BC ($P < 0.05$). Similarly, Zhao et al. (2023) [292] conducted a meta-analysis indicating that psychotherapeutic interventions, particularly CBT-based and group-based programs, significantly reduced negative body image perceptions compared to control groups (SMD = −0.49, 95% CI [−0.87, −0.11], I2 = 81%, 6 RCTs, 758 participants). These findings collectively highlight the effectiveness of CBT interventions in mitigating body image disturbances post-intervention, offering valuable insights for therapeutic approaches in similar populations.

These results highlight the importance of incorporating psychosocial interventions, such as CBT, into the comprehensive care of BC patients. Body image disturbances are common among individuals undergoing cancer treatment, impacting their mood, self-esteem, quality of life, and

emotional well-being. By targeting these issues through tailored interventions, healthcare providers can address the holistic needs of patients, promoting psychological resilience and adjustment to illness. Furthermore, the significant improvement in body image disturbances post-intervention reinforces the value of integrating psychosocial support into oncology care protocols. This not only would enhance patient satisfaction and adherence to treatment but also contribute to better long-term outcomes, healthy transition, and survivorship.

COMPARISON OF PRE- AND POST-INTERVENTION SCORES OF HOPELESSNESS:

The analysis of differences in hopelessness levels between the pre- and post-treatment groups unveils a notable reduction in feelings of hopelessness following the intervention.

Initially, participants displayed a mean hopelessness score of 8.00 with a standard deviation of 2.793 before the intervention. However, post intervention this score decreased to 6.61, with a smaller standard deviation of 2.472. The significant difference in mean scores between the pre-and post-treatment groups was evident, with a calculated t-value of 6.281 and a p-value of 0.001, indicating statistical significance. These findings underscore the effectiveness of CBT, in alleviating feelings of hopelessness among BC patients undergoing treatment.

The substantial mean difference, coupled with the robust statistical significance, illustrate the clinical significance of the intervention in addressing the critical aspect of hopelessness among BC patients. The reduced standard deviation in the post-treatment group suggests increased uniformity in hopelessness scores after the intervention, indicating a consistently positive effect across participants. These results demonstrate the value of incorporating psychosocial interventions, such as CBT, into the comprehensive care of BC patients.

Based on available research, there appears to be a gap in studies specifically focusing on the effect of CBT on hopelessness in patients with BC. However, numerous studies have investigated the impact of CBT on reducing depression in this patient population. Given that hopelessness is considered a core feature of depression, findings from these studies were utilized to support the hypothesis regarding the potential efficacy of CBT in addressing hopelessness in BC patients. In Zhang et al.'s (2022) [140] research, post-treatment analysis revealed a noteworthy enhancement in depression scores, exhibiting a standardized mean difference (SMD) of 0.88 (95% CI: 0.46, 1.29), underscoring a clinically meaningful effect ($P < 0.001$). Similarly, findings from Onyedibe et al.'s (2020) [250] study echoed these results, demonstrating that participants in the CBT group experienced significant reductions in anxiety and depression levels at the post-test and the 2-month follow-up in comparison to those in the control group. This indirect evidence underlines the interconnectedness between hopelessness and depression and suggests that interventions targeting depression, such as CBT, may have beneficial effects on hopelessness as well.

Feelings of hopelessness can profoundly impact patients' mental health and overall well-being, significantly affecting their ability to cope with the challenges of cancer treatment. However, by addressing these issues through tailored interventions, healthcare providers have the opportunity to make a transformative impact on patients' lives. By providing targeted support, we can empower patients to navigate their journey toward recovery with greater emotional strength and resilience.

COMPARISON OF PRE- AND POST-INTERVENTION SCORES OF COGNITIVE REAPPRAISAL:

The analysis of differences in CR between the pre-and post-treatment groups did not reveal a statistically significant change, although there was

a slight decrease observed in both the mean score and standard deviation.

Before the intervention, participants had an average Cognitive Reappraisal (CR) score of 25.16, with a standard deviation of 6.924. After completing the intervention, this score slightly decreased to 24.94, with a reduced standard deviation of 6.255. While there was a marginal decrease in standard deviations from pre- to post-treatment, indicating some reduction in variability within each group, this decrease was not substantial enough to result in a significant difference between the groups. Statistical analysis revealed a non-significant difference, with a t-value of .677 and a p-value of 0.504. Despite the slight decline noted in the post-intervention group, it failed to attain statistical significance, indicating that CBT may not have effectively influenced participants' CR strategies.

Cognitive reappraisal, an emotion regulation strategy, involves individuals reinterpreting the meaning of stimuli to modify their emotional experiences. Given the depth of cognitive change required, significant shifts may not manifest immediately, necessitating long-term engagement and application of cognitive restructuring techniques. The 8-week length of therapy in this study may not have been adequate to induce significant alterations in participants' Cognitive Reappraisal (CR) strategies. An additional critical factor is the duration of the intervention and the spacing of the sessions. The brief intervals between sessions may not have provided patients with sufficient time to effectively practice and apply CR techniques throughout the active phase of the intervention. This limited practice may have hindered the immediate impact of CBT on cognitive reappraisal skills observed in the post-test assessment. Moreover, the essence of effective CBT lies in the reinforcement and generalization of acquired skills across diverse contexts. However, the 8-week therapy duration in the study may have limited participants' ability to extend

cognitive reappraisal techniques beyond therapy sessions into real-life situations.

To the best knowledge of the researcher, no specific study has explored the impact of Cognitive-Behavioral Therapy (CBT) on Cognitive Reappraisal (CR) in breast cancer patients. Consequently, insights from related research, such as findings from Kivity & Huppert's (2016) [297] systematic investigation and meta-analysis on emotion regulation in Social Anxiety Disorder (SAD), are utilized. This research revealed that while individuals with SAD achieved normal levels of emotional suppression following CBT, comparable improvements in cognitive reappraisal were not observed. This implies that CBT may effectively mitigate the initial reliance on suppression, a notable impairment linked to SAD, but the implementation of reappraisal strategies seems to necessitate more time to develop, likely due to its inherent complexity.

COMPARISON OF PRE- AND POST-INTERVENTION SCORES OF EXPRESSIVE SUPPRESSION:

The analysis of differences in Expressive suppression pre-and post-intervention phase revealed a statistically significant change.

Before the intervention (PRE-ES), the average ES score among participants was 19.29 with a standard deviation of 5.126. After undergoing CBT, the mean score dropped to 16.29, and the standard deviation decreased to 4.466. This change in mean scores between the pre-treatment and post-treatment groups was statistically significant, evidenced by a t-value of 8.569 and a p-value of 0.001. Additionally, the reduced standard deviation in the post-treatment group points to a more consistent ES score across participants, suggesting a more uniformly positive effect of the intervention.

ES involves the deliberate restraint of showing emotions in an effort to manage or hide one's feelings. Within the realm of cancer care, lowering ES can make patients feel more at ease with expressing their emotions freely, potentially enhancing their emotional processing and coping mechanisms. The findings indicate that CBT was successful in decreasing ES among participants undergoing breast cancer treatment. This decrease in ES reflects an improvement in the participants' capacity to manage their emotions and express themselves more genuinely, which is vital for effective emotional processing and managing the demands of cancer treatment. The statistically significant t-value coupled with a low p-value strongly supports the efficacy of CBT in mitigating ES. These findings are particularly significant given the profound emotional toll of breast cancer diagnosis and treatment, which often necessitates adaptive coping strategies. By addressing ES through treatment interventions, such as psychotherapy patients may experience enhanced emotional well-being and resilience. Additionally, a decreased reliance on ES can lead to more transparent communication with healthcare providers, enhancing patient-provider relationships and potentially leading to superior treatment outcomes.

Research on the effects of CBT on ES, especially among cancer patients, remains limited. Only a few studies have explored this topic, thus constraining our comprehensive understanding. Despite this, our thorough research identified two significant studies that, while not specifically focusing on breast cancer (BC) patients, revealed pertinent insights. For example, in a study conducted by Strauss et al. (2019) [298], patients undergoing CBT for Panic Disorder/Agrophobia were evaluated weekly. The results revealed that while reappraisal remained unchanged until later stages of therapy and showed no association with treatment outcomes (b = -0.05, $t27$ = -0.33, p = .744), ES significantly decreased. Furthermore, ES exhibited a reciprocal relationship with biased cognitions (b = -0.07,

t_{295} = -3.13, p = .002), indicating its predictive value for symptom improvement. Additionally, Yogev Kivity et al. (2021) [297] conducted research on patients undergoing CBT for Social Anxiety Disorder (SAD), offering novel insights. They found that individuals with SAD achieved normal levels of ES but not reappraisal after CBT intervention. This suggests that CBT may alleviate the initial overreliance on ES among individuals with SAD (t = -3.98, p < .01, rs = .22).

These results highlights the importance of integrating psychosocial interventions, such as CBT, into the comprehensive care of BC patients. Addressing ES and promoting healthy ER are vital components in supporting patients as they navigate the emotional challenges associated with cancer treatment. By facilitating a more open expression of emotions, healthcare providers can help patients process their feelings effectively, ultimately enhancing their overall well-being and quality of life throughout their cancer journey.

COMPARISON OF POST-INTERVENTION AND FOLLOW-UP SCORES OF BODY IMAGE DISTURBANCE:

The analysis of differences in body image disturbances between the post-treatment and follow-up groups revealed a statistically significant change. Post CBT invention, participants exhibited a mean body image disturbance score of 6.61, with a standard deviation of 4.638. However, in the follow-up group (FU -BID), the mean score slightly decreased to 6.10, with a standard deviation of 4.028. The disparity in mean scores in post and follow up was statistically significant, with a t-value of 2.633 and a p-value of 0.013. These findings suggest that while there was a modest decrease in body image disturbances from the post-treatment to the follow-up period, it was statistically significant. This indicates that the positive effects of CBT persisted over time, leading to sustained

improvements in participants' perceptions of body image. The statistically significant t-value and low p-value underscore the clinical relevance of the observed changes, suggesting that the CBT intervention had a lasting impact on body image disturbances among breast cancer patients. The slight decrease in the mean score and standard deviation in the follow-up group further supports the notion of continued improvement in body image perceptions beyond the immediate post-intervention period.

These findings align with Esplen et al.'s (2018) [107] research, a two-arm RCT focusing on breast cancer patients, predominantly in stages 0-II. Their CBT-based intervention, Restoring Body Image After Cancer (ReBIC), delivered in a group format, showed sustained effectiveness on body image issues. Notably, participants in the intervention group exhibited significantly reduced negative body image perceptions across post-intervention and 6- and 12-month follow-ups, with Cohen's d, ranging from -0.21 to -0.42 (all $P < 0.010$).

Patients undergoing CBT for body image disturbances acquire a range of cognitive and behavioral skills aimed at challenging negative thought patterns and coping with distress. These skills, integrated into daily life, enable individuals to confront and manage body image concerns effectively. Throughout the follow-up period, patients continue to employ these learned techniques, resulting in sustained improvements in body image perceptions. Additionally, CBT encouraged patients to engage in pleasurable and meaningful activities promoting a positive sense of self and well-being. Active involvement in these activities boosted self-esteem and acceptance of their bodies, which in turn contributed to sustained enhancements in perceptions of body image over time.

The enduring effects of CBT in reducing body image disturbances among breast cancer patients are particularly noteworthy, given the complex

emotional and psychological challenges associated with the disease and its treatment. These disturbances may encompass a range of issues, including dissatisfaction with physical appearance, concerns about scarring or changes in body shape, and fears related to self-identity and femininity. By targeting these specific concerns, CBT can empower patients to develop healthier coping strategies, challenge negative thought patterns, and enhance self-esteem and body acceptance. Moreover, the sustained improvements observed in our study suggest that CBT interventions tailored to address body image concerns can serve as valuable adjuncts to standard cancer care, promoting holistic well-being and quality of life for breast cancer survivors.

COMPARISON OF POST-INTERVENTION AND FOLLOW-UP SCORES OF HOPELESSNESS:

The analysis of differences in hopelessness between the post-treatment and follow-up groups did not reveal a statistically significant change.

Post CBT, participants had a mean hopelessness score of 6.61, with a standard deviation of 2.472. However, in the follow-up group (FU-HOPELESSNESS), the mean score was slightly lower at 6.26, with a standard deviation of 1.807. Despite the slight decrease in mean score, the difference between the two groups was not statistically significant, with a t-value of 1.941 and a p-value of 0.062. This outcome implies that although a modest decline in hopelessness scores might be observable from post-treatment to follow-up, it cannot conclusively be attributed to the efficacy of CBT. Terminal illnesses like BC often evoke feelings of hopelessness due to factors such as uncertain prognosis, physical discomfort, treatment side effects, fear of recurrence, financial strain, and disrupted life plans. Given the complexity of these challenges, an eight-week therapy regimen may not suffice to fully alleviate hopelessness, may not suffice to fully alleviate feelings of hopelessness.

Hopelessness in the context of terminal illnesses is not simply a transient emotion; it's a deeply ingrained response to the daunting realities patients face. While notable improvements were evident in pre- and post-therapy assessments as indicated by a significant t-value of 6.281 and a p-value of 0.001, the absence of statistical significance in the comparison between post-treatment and follow-up periods underscores the enduring nature of these underlying concerns. Hopelessness can persist despite therapeutic interventions, as it is deeply intertwined with the profound existential challenges posed by terminal illness. It is pertinent to acknowledge, however, that the proximity of the p-value (0.062) to the conventional threshold for statistical significance (typically set at 0.05) suggests a discernible trend toward improved hopelessness scores that approaches, albeit does not attain, statistical significance.

During therapy sessions, individuals often find solace in venting their emotions and expressing their deepest concerns and frustrations. This cathartic process allows them to release pent-up feelings and gain a sense of relief. As therapy progresses, clients may learn coping mechanisms to manage their emotions and thoughts, leading to a reduction in hopelessness levels. However, once therapy concludes and individuals return to their everyday surroundings, they may encounter the same stressors and triggers that initially contributed to their sense of hopelessness. Without the structured support provided during therapy sessions, individuals may struggle to maintain the progress they made. In such cases, regular follow-up and continued engagement in the therapy process becomes crucial.

These findings emphasize the importance of interventions that extend beyond therapy sessions to address various aspects of individuals' lives, such as their social support networks, coping skills, and environmental influences. They also highlight the ongoing need for intensive efforts to alleviate hopelessness in the context of terminal illnesses like cancer.

While the gains observed during the active CBT- intervention phase are promising, they highlight the enduring challenge of hopelessness that often accompanies terminal illness. This observation emphasizes the need for ongoing, comprehensive interventions tailored to address and alleviate the persistent feelings of hopelessness faced by terminally ill patients. Such sustained efforts are crucial to provide meaningful support and improve their quality of life. Healthcare providers can better meet the emotional needs of individuals grappling with terminal illness by implementing comprehensive, ongoing support systems.

COMPARISON OF POST-INTERVENTION AND FOLLOW-UP SCORES OF COGNITIVE REAPPRAISAL:

The analysis revealed a statistically significant change in CR scores between the post-treatment and follow-up groups.

Post CBT, participants had a mean score of 24.94, with a standard deviation of 6.255, while in the follow-up (FU-CR), the mean score increased to 27.03, with a standard deviation of 5.437. This change was statistically significant, with a t-value of -7.714 and a p-value of 0.001. These findings suggest that CR scores significantly improved from the post-treatment to the follow-up period. The decrease in mean score in the follow-up period indicates an enhancement in participants' cognitive restructuring abilities in the long run, leading to an adaptive way of ER.

The lack of significant improvement in the pre-post comparison (t-value = 0.677, p-value = 0.504) suggests that cognitive reappraisal may not have been fully established in a short period. However, after a two-month interval, participants demonstrated significant improvement, indicating the gradual integration and utilization of cognitive restructuring skills over time lead to an effective way of emotional regulation.

The absence of a notable effect from CBT on cognitive reappraisal in

immediate post-test assessments, yet its significance during the follow-up (FU) stage among breast cancer patients, may stem from various factors. The complexity of the CBT intervention might cause delays in noticeable cognitive restructuring. Cognitive reappraisal demands that individuals internalize and consistently practice the techniques learned, which can require time to perfect. The initial evaluation, conducted directly after treatment, might have been too premature to detect significant changes due to the limited time patients had to effectively practice these skills. Additionally, the duration of the intervention and the spacing of sessions play critical roles. The brief intervals between sessions may not have provided patients with adequate time to thoroughly practice and implement the cognitive reappraisal techniques during the active phase of the intervention. This limited practice may have hindered the immediate impact of CBT on cognitive reappraisal skills observed in the post-test assessment. However, during the follow-up phase, patients had more time to apply and integrate the techniques learned during therapy into their daily lives. This extended period allowed them to practice cognitive reappraisal in various real-life situations, thereby enhancing their proficiency and understanding of the technique. As they continued to apply and refine these skills outside the therapy sessions, the effectiveness of cognitive reappraisal likely became more pronounced over time, leading to significant improvements observed in the follow-up assessment.

Additionally, the practice effect, which refers to the improvement in performance resulting from repeated practice of a task or skill, may have contributed to the enhanced effectiveness of cognitive reappraisal in the follow-up stage. With consistent application and analysis of the techniques learned in therapy, patients may have become more adept at identifying and challenging negative thoughts, leading to better outcomes in cognitive reappraisal during the follow-up period.

The findings from Onyedibe et al. (2021) [250] closely parallel our study, reinforcing the efficacy of cognitive-behavioral therapy (CBT) in enhancing cognitive emotion regulation (CER) among participants. They reported a significant difference in adaptive CER total scores between the CBT and control groups ($t(22) = 4.65$, $p < .001$), indicating higher scores in the CBT group. Additionally, a substantial improvement in adaptive CER at the 2-month follow-up assessment was observed, with the CBT group maintaining higher scores compared to the control group ($t(22) = 6.39$, $p < .001$). Furthermore, they documented a significant reduction in maladaptive CER total scores within the CBT group compared to controls ($t(22) = -5.73$, $p < .001$), and this reduction was sustained at the 2-month follow-up ($t(22) = -8.54$, $p < .001$). These findings echo our study's conclusions regarding the beneficial effects of CBT on both adaptive and maladaptive CER, highlighting its potential as a therapeutic intervention for improving ER skills. These findings underscore the efficacy of CBT in fostering enduring enhancements in CR skills over time, leading to improved ER.

COMPARISON OF POST- INTERVENTION AND FOLLOW-UP SCORES OF EXPRESSIVE SUPPRESSION:

The analysis revealed a statistically significant difference in expressive suppression between the post-treatment and follow-up groups.

This highlights the transformative impact of CBT on emotional regulation among breast cancer patients. During the post-treatment phase, participants exhibited a mean ES score of 16.29 which further decreased to 15.06 in the FU phase. The statistical significance of this difference, evidenced by a t-value of 2.942 and a p-value of 0.006, highlights the robustness of the observed change. Such a substantial deviation from random variation indicates that the decrease in ES is unlikely to be incidental but rather attributable to the effects of CBT.

The decrease in ES observed during follow-up compared to the post-treatment phase underscores the enduring effectiveness of CBT in promoting adaptive emotional regulation among breast cancer patients. This indicates that the positive changes initiated during the intervention persisted beyond the immediate post-treatment period, reflecting a sustained transformation in how individuals with breast cancer navigate their emotional experiences. By demonstrating a continued decrease in expressive suppression, patients exhibit a lasting capacity to confront and engage with their emotions openly and authentically, thus fostering resilience and emotional well-being throughout their survivorship journey.

To our knowledge, no previous studies have directly examined the enduring effects of CBT on ES in breast cancer patients, insights from Yogev Kivity et al. (2021) [297] shed light on comparable patterns in individuals with Social Anxiety Disorder (SAD), offering valuable parallels to our findings. In their investigation, participants undergoing CBT displayed notable reductions in suppression frequency, heightened reappraisal self-efficacy, and diminished unpleasant reactions when exposed to SAD-related stimuli (all ps < .05). Impressively, these positive effects were maintained at the 3-month follow-up. This highlights the potential efficacy of interventions like CBT in promoting adaptive emotion regulation strategies among individuals undergoing BC treatment. By addressing maladaptive coping mechanisms such as expressive suppression, CBT may enhance emotional well-being and resilience, ultimately improving the overall quality of life for patients.

CORRELATION ANALYSIS OF PRE-INTERVENTION VARIABLES:

The correlation analysis of pre-intervention variables unveils intricate relationships among the variables measured, including Hopelessness, Body image disturbances (BID), Cognitive Reappraisal, and Expressive Suppression before intervention.

The findings suggest that individuals with higher baseline levels of BID tend to report increased feelings of hopelessness before the intervention. This positive correlation between pre-intervention BID scores and pre intervention-hopelessness scores ($r = 0.747$, $p < 0.01$) indicates a predisposition towards experiencing hopelessness in individuals with heightened BID. For individuals confronting breast cancer, body image concerns often emerge as a significant psychological challenge. The impact of cancer treatments on physical appearance, such as hair loss, scarring, or changes in breast size or shape, can profoundly affect one's sense of self-image and identity. Moreover, the fear of recurrence, the uncertainty surrounding the future, and the disruption of daily life due to treatment regimens can exacerbate feelings of distress and hopelessness. In this context, individuals who already grapple with heightened levels of BID may be particularly vulnerable to experiencing profound hopelessness. Their struggle with body image issues may intensify existing emotional distress, leading to a sense of despair about their circumstances and prospects.

A notable negative correlation observed between pre-intervention BID scores and pre- intervention CR scores ($r = -0.870$, $p < 0.01$) suggests that individuals who employed fewer CR strategies before the intervention tend to exhibit higher levels of BID. This finding implies that CR may have a dampening effect on BID disturbances, indicating a potential regulatory role of cognitive emotional regulation mechanisms in modulating body image disturbances. These findings are supported by the study carried out by McLean et al., 2010 [299], in which they found that CR strategies are associated with higher body image satisfaction, less shape and eating concerns, greater acceptance of physical appearance changes, and more frequent adoption of healthy behaviors. Moreover, Alice Beatrice Prefit et al., 2019 [300] research shows that body satisfaction significantly increased

in the experimental conditions where acceptance and reappraisal were introduced (mean difference = − 1.4, F (1, 102) = 7.55, p=0.007, η2=0.07), reappraisal (mean difference=−1.45, F (1, 102)=8.18, p=0.005, η2 =0.07), and decreased in the control group (mean difference=1.31, F (1, 102)=6.65, p=0.01, η2=0.06) respectively.

The findings indicates that participants who struggle with body image disturbances may be less inclined to employ adaptive emotional regulation strategies before receiving any intervention. This pattern of emotional regulation may contribute to the exacerbation of BID symptoms, as individuals may find themselves more susceptible to negative interpretations of their body image and associated emotions. However, the inverse relationship observed between BID and CR scores implies that interventions aimed at enhancing cognitive reappraisal skills may hold promise for mitigating body image disturbances among individuals facing breast cancer.

Moreover, the positive correlation between pre-intervention BID scores and pre intevention-ES scores ($r = 0.676$, $p < 0.01$) suggests that individuals with elevated BID are more inclined to engage in expressive suppression as an emotion regulation strategy. This association implies that heightened BID may contribute to the adoption of expressive suppression as a coping mechanism, potentially reflecting an attempt to suppress emotional responses in the presence of perceived threat or uncertainty.

For individuals grappling with body image disturbances in the context of breast cancer, the emotional toll can be significant. The physical changes resulting from cancer treatment may evoke a range of intense emotions, including sadness, anxiety, and frustration. In response to these distressing feelings, individuals may resort to expressive suppression—a strategy characterized by the inhibition of outward emotional displays—as

a means of managing their emotional experiences. By suppressing outward displays of emotion, individuals may attempt to maintain a facade of strength or composure, fearing that openly expressing their distress could lead to judgment or scrutiny from others. However, this suppression can exacerbate body image disturbances by preventing individuals from effectively processing and addressing their underlying emotions. Instead of finding healthy ways to cope with negative body image perceptions, they may internalize their feelings, leading to increased distress and a heightened sense of isolation. Additionally, prolonged emotional suppression can contribute to heightened stress levels, which in turn can negatively impact both mental and physical health outcomes. Therefore, while the initial intention may be to protect oneself, the long-term consequences of emotional suppression can ultimately worsen body image disturbances and overall well-being.

A notable negative correlation was found between pre-hopelessness scores and pre-intervention Cognitive Reappraisal (CR) scores ($r = -0.788$, $p < 0.01$), while a positive correlation was observed between pre-intervention Expressive Suppression (ES) scores ($r = 0.610$, $p < 0.01$) and hopelessness. This indicates that individuals who use fewer CR strategies and engage more in expressive suppression tend to have higher levels of pre-existing hopelessness. This creates a cyclical relationship where heightened feelings of hopelessness can diminish motivation and reduce the use of adaptive coping strategies such as cognitive reappraisal. Simultaneously, a greater reliance on maladaptive strategies like expressive suppression can worsen feelings of hopelessness by hindering effective emotional processing and resolution.

It is noteworthy to mention that almost all participants scored positively on hopelessness items such as "I can't imagine what my life would be like in 10 years," "I expect to get more of the good things in life than the average

person," and "The future seems vague and uncertain to me." This observation underscores the prevalence of feelings of hopelessness within the participant, highlighting the importance of addressing such emotional experiences in interventions aimed at improving psychological well-being. Additionally, this trend suggests a theme of uncertainty about the future, likely influenced by the diagnosis and treatment of cancer.

CORRELATION ANALYSIS OF POST-INTERVENTION VARIABLES:

The correlation analysis of post-intervention variables reveals interesting insights into the interrelationships among key psychological constructs following cognitive-behavioral therapy (CBT), for Breast Cancer patients.

The findings revealed a robust positive correlation between post-intervention body image disturbances (POST-BID) and post-intervention hopelessness (POST-HOPELESSNESS) scores, with a correlation coefficient of 0.687**. This aligns with previous research by Wu et al. (2021) [301] where the researcher demonstrated that women with a more positive perception of their body image tended to report lower levels of hopelessness ($r = 0.423$, $p < .01$). This suggests that individuals' perceptions of their own body image greatly influence their feelings of hopelessness, highlighting the profound connection between these psychological elements in breast cancer (BC) patients undergoing treatment. It appears that those who experience more severe disturbances in their body image are also more likely to suffer from heightened feelings of hopelessness. This association emphasizes the interconnectedness of body image concerns and emotional distress among BC patients undergoing treatment.

Additionally, our study revealed a strong negative correlation between post-intervention CR (POST-CR) scores and both post-intervention BID (POST-BID) and post-intervention hopelessness (POST-HOPELESSNESS) scores, with correlation coefficients of -0.817** and -

0.711** respectively. By adaptively changing their interpretation of their circumstances, individuals can modify their emotional responses, which can lead to a decrease in the intensity of negative emotions like distress, hopelessness, and dissatisfaction with body image. This process allows them to regain a sense of control over their emotions and enhance their psychological well-being. These results are consistent with earlier studies, such as one by Chao Xu Peh et al. (2016), which also found a significant indirect influence of reappraisal on anxiety and depression through hope, underscoring hope's mediating role in the connection between reappraisal and psychological distress (b = -0.95, SE = 0.42, 95% confidence interval = -1.77 to -0.12). Furthermore, Aleksandra Kovač et al. (2020) [302] demonstrated that cognitive refocusing positively impacted both physical and emotional well-being among individuals. Effect sizes (a = -0.83 for physical, a = -0.83 for emotional) suggested significant improvements, with confidence intervals for both outcomes (0.17 – 0.83 for physical, -0.01 – 0.58 for emotional) indicating reliable effects. Additionally, similar outcomes were observed concerning cognitive reappraisal and body image disturbances. This reveals that individuals who engage in higher levels of Cognitive Reappraisal (CR), which involves reinterpreting stressful situations positively, often report reduced body image disturbances and feelings of hopelessness after the intervention. This indicates that employing adaptive cognitive strategies can lead to improved psychological outcomes for breast cancer (BC) patients following an intervention. Furthermore, there is a moderate positive correlation between scores for post-intervention expressive suppression (POST-ES) and both post-intervention body image disturbances (POST-BID) and post-intervention hopelessness (POST-HOPELESSNESS), with correlation coefficients of 0.593** and 0.524** respectively. This suggests that higher levels of expressive suppression are associated with increased body image disturbances and hopelessness.

Expressive suppression involves the inhibition of emotional expression,

typically manifested by hiding or concealing one's emotions. In this context, individuals who resort to higher levels of expressive suppression may be attempting to mask their distress or discomfort, perhaps due to social pressures or a desire to appear strong and resilient. However, the correlation indicates that this emotional regulation strategy may not be effective and could even be detrimental to their psychological well-being. By suppressing their emotions, individuals may fail to adequately process and address their feelings of body dissatisfaction and hopelessness. Instead of finding constructive ways to cope with these challenges, they may inadvertently exacerbate their negative emotions, leading to increased body image disturbances and feelings of hopelessness. These findings echo a study by Spinoni et al. (2023) [303], which concluded that greater levels of body image disturbance were weakly correlated with higher levels of expressive suppression ($r = 0.191$, $p = 0.028$), and moderately associated with levels of CR ($r = -0.331$, $p < 0.001$) and strongly associated higher levels of body image disturbance ($r = 0.665$, $p < 0.001$) and greater usage of CR strategy was moderately correlated with lower levels of body image disturbance ($r = -0.477$, $p < 0.001$).

These findings shed light on the intricate dynamics between body image concerns, hopelessness, and ER strategies among BC patients post-intervention. They emphasize the pivotal role of adaptive cognitive strategies, such as CR, in fostering better psychological outcomes and reducing body image issues and hopelessness. Conversely, the use of maladaptive emotion regulation strategies, like expressive suppression, appears to be associated with heightened psychological distress. Furthermore, the strong positive correlation between body image disturbances and feelings of hopelessness emphasizes the intertwined nature of these constructs and their collective impact on patients' psychological well-being. Understanding these interrelationships offers valuable insights for designing targeted interventions like CBT aimed at

addressing the multifaceted psychological needs of BC patients and enhancing their overall well-being post-treatment.

CORRELATION ANALYSIS OF FOLLOW-UP VARIABLES:

The correlation analysis of follow-up variables reveals significant associations among key psychological constructs during the post-intervention period for BC patients.

Firstly, there is a strong positive correlation between follow-up body image disturbances (FU-BID) and follow-up hopelessness (FU-HOPELESSNESS) scores, with a correlation coefficient of 0.606**. This suggests that individuals who report higher levels of body image disturbances also tend to experience greater feelings of hopelessness during the follow-up period, which was similar to the post-intervention.

Secondly, there is a strong negative correlation between follow-up CR (FU-CR) scores and both follow-up body image disturbances (FU-BID) and follow-up hopelessness (FU-HOPELESSNESS) scores, with correlation coefficients of -0.754** and -0.700** respectively. This suggests that individuals exhibiting higher levels of of CR during the FU period tend to report lower levels of body image disturbances and hopelessness. BC diagnosis and treatment often pose significant challenges to an individual's body image and emotional well-being. Patients may experience distress due to changes in physical appearance, such as scarring from surgery, hair loss from CT, or alterations in body shape due to hormonal treatments. These changes can lead to feelings of dissatisfaction, embarrassment, or shame, contributing to body image disturbances. However, individuals who employ CR may reinterpret their physical changes as signs of resilience, strength, or personal growth rather than solely focusing on the negative aspects. By adopting this adaptive coping strategy, they may experience reduced distress related to their body image concerns. Additionally, CR can also influence

perceptions of hopelessness by fostering a sense of agency, control, and optimism in the face of adversity. Individuals who engage in CR may view their cancer diagnosis and treatment as challenges to be overcome rather than insurmountable obstacles, leading to a decreased sense of hopelessness.

Lastly, there is a moderate positive correlation between FU-ES) scores and both follow-up body image disturbances FU-BID and FU-Hopelessness scores, with correlation coefficients of 0.485** and 0.488** respectively. This suggests that individuals who engage in higher levels of ES during the FU period may also experience greater body image disturbances and feelings of hopelessness.

ES involves the inhibition or concealment of one's emotional expressions, often as a means to manage or control perceived negative emotions. Participants may suppress their emotions as a coping mechanism to avoid burdening others with their distress or to maintain a sense of composure in the face of adversity. However, while expressive suppression may provide temporary relief from immediate emotional discomfort, it can also have detrimental effects on psychological well-being in the long term. Suppressing emotions may lead to feelings of emotional numbness, social isolation, and internalized distress, exacerbating psychological symptoms such as body image disturbances and feelings of hopelessness. Furthermore, individuals who engage in expressive suppression may experience difficulties in processing and adapting to their cancer diagnosis and treatment experiences. By suppressing their emotional reactions, they may inhibit opportunities for emotional processing, problem-solving, and seeking social support, which are crucial aspects of coping effectively with cancer-related stressors.

Overall, the exploration of correlations across various time points yields invaluable insights crucial for tailoring interventions to alleviate psychological distress among breast cancer patients. By discerning the

interrelations between different factors, mental health professionals can precisely target areas requiring intervention, optimizing treatment strategies for enhanced efficacy. For example, identifying a robust correlation between feelings of hopelessness and disturbances in body image prompts interventions to concurrently address both aspects. By addressing these interconnected issues holistically, interventions can synergistically enhance treatment outcomes, fostering improved psychological well-being among patients.

Furthermore, tracking the evolution of correlations over time offers critical guidance for the timing and duration of intervention components. Persistent or worsening psychological patterns identified through correlations during FU signal the need for adaptive interventions that evolve alongside patients' changing needs. Such insights enable clinicians to fine-tune intervention strategies, ensuring they remain responsive and effective throughout the treatment trajectory. Additionally, correlational analyses illuminate the selection of therapeutic techniques tailored to target specific psychological processes. For instance, a significant negative correlation between CR and ES underscores the importance of bolstering cognitive reappraisal skills to mitigate the tendency to suppress emotions effectively. By leveraging such insights, interventions can be designed to capitalize on patients' inherent strengths, facilitating more effective coping and emotional regulation strategies.

STEPWISE REGRESSION ANALYSIS PREDICTING PRE-INTERVENTION BODY IMAGE DISTURBANCE:

Through the examination of three key predictor variables - pre-intervention hopelessness, pre- intervention cognitive reappraisal (pre-CR), and pre- intervention expressive suppression (pre-ES) - significant insights emerge regarding the predictor of Body Image disturbances in patients with cancer.

The analysis revealed that pre-CR emerged as a significant predictor of

pre-BID scores (β = -.870, t = -9.482, p < 0.001), indicating that individuals with higher levels of CR before the intervention tended to have lower pre-BID scores. However, pre-hopelessness (β = .163, t = 1.098, p = .282) and pre-ES (β = .123, t = .942, p = .354) did not demonstrate a statistically significant relationship with pre-BID.

Cognitive reappraisal (CR) which emerged as a central element in this context is an emotion regulation strategy that involves reframing the interpretation of emotionally charged situations to alter their emotional impact. Instead of suppressing or avoiding negative emotions, individuals engaging in CR consciously reinterpret the meaning of a situation to reduce its emotional intensity. In the context of reducing body image disturbances in cancer patients, cognitive reappraisal plays a crucial role. BC treatments often lead to alterations in appearance, impacting body image and self-esteem significantly. By employing CR, individuals can reframe perceptions of these changes, focusing on aspects of resilience, strength, and survival rather than solely on perceived physical flaws. Furthermore, CR fosters a more positive and accepting attitude toward one's body, promoting self-compassion and empowerment in the face of illness-related challenges.

The significant negative relationship observed between pre intervention-CR and pre-intervention body image disturbance (pre-BID) (β = -0.870, t = -9.482, p < 0.001) underscores the pivotal role of cognitive reappraisal skills in mitigating distress related to body image among breast cancer patients. Strong CR skills enable individuals to regulate emotional responses to appearance-related concerns, leading to lower levels of distress and dissatisfaction with their bodies. Consequently, higher levels of CR predict reduced body image disturbances, as individuals adeptly employ adaptive coping strategies to manage the psychological impact of cancer-related changes in appearance.

Due to a lack of literature specifically investigating the link between cognitive reappraisal and body image in breast cancer patients, research conducted in other populations provides relevant evidence. This approach allows us to leverage existing findings on cognitive reappraisal's impact on body image from related fields, contributing valuable insights to the understanding of body image concerns in breast cancer patients. In a study by Prefit et al. (2019) [300], cognitive reappraisal demonstrated a significant reduction in body dissatisfaction (mean difference = -1.45, $p = 0.005$, $\eta 2 = 0.07$), offering a promising avenue for addressing this concern. These findings underscore the efficacy of reappraisal as a potent strategy for mitigating negative body image perceptions. Moreover, a longitudinal study by Spinoni et al. (2023) [303] carried out on 133 pregnant women participated in three phases of data collection: during the second (T1) and third (T2) trimesters of pregnancy, and approximately 6 months postpartum (T3) also supports our result. In this study, the prepartum body image disturbances were negatively associated with cognitive reappraisal ($b = -0.727$, 95% CI [-1.083, -0.370]), and cognitive reappraisal was significantly related to postpartum body image disturbances ($b = -0.142$, 95% CI [-0.209, -0.076]). Furthermore, the indirect effect of cognitive reappraisal at T2 was significant ($b = 0.103$, $SE = 0.036$, 95% CI [0.043, 0.184]), suggesting that higher levels of cognitive reappraisal during pregnancy partially mediated the relationship between prepartum and postpartum body image disturbances.

Conversely, pre-hopelessness ($\beta = 0.163$, $t = 1.098$, $p = 0.282$) and pre-ES ($\beta = 0.123$, $t = 0.942$, $p = 0.354$) did not emerge as significant predictors of pre-BID in this study. While these factors may contribute to overall psychological distress among breast cancer patients, their direct influence on BID appears to be less pronounced. Nonetheless, addressing these factors within a comprehensive therapeutic approach remains crucial for promoting holistic well-being and coping efficacy in this vulnerable population.

This emphasizes the crucial role of incorporating psychotherapeutic techniques designed to improve cognitive reappraisal skills in therapeutic interventions. By integrating cognitive reappraisal techniques, such as reframing and challenging maladaptive thoughts concerning body image, along with fostering self-compassion within CBT, a significant transformation can occur in patients' cognitive appraisal processes. This process allows for the critical evaluation and reframing of negative perceptions about their appearance, which ultimately results in reduced distress and fewer body image disturbances among cancer patients.

In this study, CBT through structured sessions facilitated a transformative process wherein cognitive reappraisal played a central role. By encouraging individuals to modify their perceptions of situations to influence their emotional responses, CBT aims to cultivate a healthier and more balanced perspective on physical appearance. This approach emphasized a constructive and compassionate mindset rather than denying or ignoring insecurities. By reframing perceptions and promoting a more adaptive and positive self-evaluation, participants experienced a fundamental shift in their emotional responses to appearance-related concerns, leading to a notable decrease in body image disturbances. The observed reduction in body image disturbances after CBT intervention provides compelling evidence of cognitive reappraisal's predictive and catalytic role in therapeutic interventions.

STEPWISE REGRESSION ANALYSIS PREDICTING PRE-INTERVENTION -HOPELESSNESS:

Through the examination of three key predictor variables—pre-intervention-body image disturbance (PRE-BID), pre-intervention cognitive reappraisal (PRE-CR), and pre- intervention expressive suppression (PRE-ES)—significant insights emerge regarding predictors of hopelessness in patients with breast cancer.

Hopelessness refers to a pervasive feeling of despair or lack of optimism

about the future, often stemming from the challenges and uncertainties associated with a cancer diagnosis and treatment. Beyond the physical aspects of the illness and its treatment, individuals may grapple with profound existential questions, fear of recurrence, changes in body image due to surgery or chemotherapy, and uncertainty about the future. These factors can contribute to heightened levels of distress, anxiety, and, in some cases, feelings of hopelessness.

Cognitive reappraisal, an emotional regulation strategy characterized by the capacity to reframe thoughts or perceptions of a situation to mitigate its emotional impact, has demonstrated a notable inverse correlation with hopelessness. Specifically, regression analysis reveals a significant negative association ($\beta = -.870$, $t = -9.482$, $p < 0.001$), indicating that pre-existing levels of cognitive reappraisal, represented by PRE-CR, significantly predict levels of hopelessness in breast cancer patients. This finding underscores the potency of cognitive reappraisal as a coping mechanism among breast cancer patients, enabling them to reinterpret stressors or adversities in a manner that diminishes feelings of hopelessness. By reframing their perceptions or thoughts about their circumstances, patients with breast cancer can adopt a more positive or manageable outlook, thereby mitigating feelings of hopelessness despite the formidable obstacles posed by the illness.

The literature examining the relationship between cognitive reappraisal and hopelessness in breast cancer patients is notably sparse, mirroring the broader lack of research on cognitive reappraisal within the context of breast cancer. This scarcity of studies highlights a significant gap in understanding the psychological processes and emotional regulation mechanisms specific to breast cancer patients, particularly concerning cognitive reappraisal and its impact on hopelessness. Considering that hopelessness is frequently seen as a key aspect of depression, the lack of research highlights the necessity of using data from diverse areas and

wider populations to understand the possible links between cognitive reappraisal and hopelessness. Aldao, Nolen-Hoeksema, and Schweizer (2009) [304] conducted a meta-analysis examining how emotion-regulation strategies correlate with various psychological disorders. Their focus was on the link between reappraisal and depression. Their findings showed a negative correlation between the two, with a mean correlation coefficient of -0.17. The 95% confidence interval spanned from -0.29 to -0.06, illustrating variability in this relationship across different studies. Crucially, the p-value was under 0.05, confirming that the inverse relationship between cognitive reappraisal and depression is statistically significant. This highlights that individuals who practice cognitive reappraisal—reinterpreting situations to change emotional outcomes—generally report lower depression levels.

Furthermore, the non-significant relationships observed between pre-body image (PRE-BIS) and pre-expressive suppression (PRE-ES) with hopelessness suggest that while these factors may influence psychological well-being, their impact on hopelessness in breast cancer patients is comparatively less pronounced. While body image concerns and emotional regulation strategies such as expressive suppression certainly contribute to the psychological experiences of breast cancer patients, their impact on feelings of hopelessness might be overshadowed by the distinct role of CR.

These insights underscore the importance of targeting cognitive reappraisal skills in interventions aimed at improving the hopelessness of breast cancer patients. In this study, CBT was carried out through structured sessions to facilitate a transformative journey wherein cognitive reappraisal took center stage. By guiding individuals to recalibrate their perceptions of challenging situations to influence their emotional reactions, CBT aims to foster a healthier and more balanced outlook on feelings of

hopelessness. This therapeutic approach prioritized fostering constructive and compassionate mindsets rather than dismissing or overlooking individuals' distress.

Through the process of cognitive reappraisal, participants were encouraged to reassess and reinterpret their thoughts and beliefs surrounding their breast cancer diagnosis and its implications for their future, to decrease their catastrophizing sense of hopelessness and helplessness. By promoting a shift in emotional regulation and encouraging a more positive self-evaluation, participants experienced a significant transformation in their emotional responses to feelings of hopelessness. Consequently, a significant reduction in hopelessness levels was observed after the CBT intervention, suggesting that cognitive reappraisal effectively mitigates this distressing emotion.

The observed reduction in feelings of hopelessness after CBT intervention serves as compelling evidence of cognitive reappraisal's predictive and catalytic role in therapeutic interventions targeting psychological distress among breast cancer patients. By empowering individuals to reframe their perceptions and cultivate resilience in the face of adversity, cognitive reappraisal-based interventions hold promise for enhancing psychological well-being and fostering a sense of hope among those navigating the challenges of breast cancer.

LIMITATIONS

1. The sample size of the study was small.
2. The study's constraint on age, socio-economic status, and occupational diversity limits its generalizability across different life stages.
3. Maintaining timely follow-up during sessions proved somewhat challenging due to fluctuations in the duration of chemotherapy cycles.
4. Our analysis failed to account for the timing of chemotherapy administration, specifically overlooking the distinction between neoadjuvant and adjuvant chemotherapy regimens.
5. The present study was conducted at a tertiary care hospital in an urban region of Punjab, rendering its generalizability to the wider Indian population potentially limited.
6. The tools utilized in the study were self-report measures. While these tools demonstrated good reliability and validity, there remains a potential risk of respondents providing acquiescent answers.
7. Applying, adapting, and extending a Western model of therapy like CBT to a predominantly Punjabi occupational context presents unique challenges.

SUMMARY AND CONCLUSION

The present study was conducted to study the effect of Cognitive Behavioral Therapy on Body Image Disturbance, Emotional Regulation, and Hopelessness in Patients with Breast Cancer. The study was conducted on 31 female patients diagnosed with BC (Stage I, Stage II, Stage III) as per the oncologist, undergoing Chemotherapy or have undergone surgery, admitted to the oncology ward or visiting oncology OPD at Dayanand Medical College and Hospital. The participants were initially assessed using Body Image Scale (BIS), Beck Hopelessness Scale (BHS) and Emotional Regulation Questionnaire (ERQ). Subsequently, 8 individual CBT sessions, each lasting 40 minutes, were conducted with all participants. Following the completion of the CBT sessions, participants were reassessed for distress in body image, emotional regulation, and hopelessness using the aforementioned measurement tools. Additionally, a follow-up assessment was conducted after a 2-month interval from the post-test to evaluate the durability of the treatment's effects on the participants. The results obtained were discussed in light of existing research evidence. The data was analyzed using SPSS, and following conclusions were noted in the current study:

- The majority of participants were in the 41-60 age range, with 25.8% aged 30-41, 35.5% aged 41-50, and 38.7% aged 51-60, yielding a mean age of 48.3 years.
- Marital status indicated that 80.6% of participants were married, while 19.4% were widowed.
- The educational backgrounds of participants varied widely, with 19.4% having completed education up to the 10th grade, 29.0% up to the 12th grade, 16.1% being graduates, and 12.9% holding post-graduate degrees.
- Occupationally, a significant portion of the participants were unemployed (64.5%), while smaller percentages were engaged in

skilled agricultural and fishery work (3.2%), clerical positions (9.7%), or professional roles (22.6%).

- The type of residence showed a slight majority residing in urban areas (64.5%), and the predominant family type was nuclear (80.6%).
- The majority of participants fell into the Upper Class category (48.4%), indicating a substantial representation of individuals with relatively high socioeconomic status. Following the Upper Class, the Upper-Middle Class was the next most prevalent socioeconomic group, comprising 35.5% of the total sample. A smaller proportion of participants belonged to the Lower-Middle Class, representing 12.9% of the total sample. Only one participant was classified as Upper-Lower Class, indicating a minimal presence in this socioeconomic category.
- The distribution of breast cancer phases among participants reveals that the majority were diagnosed with Phase II BC (45.2%), followed by Phase III BC (45.2%), while Phase I BC was less common (9.7%).
- Participants exhibited a varied distribution in the time since BC diagnosis, showing a relatively even spread across different time frames. The majority of diagnoses, encompassing both stage II and stage III cancer, occurred within the following intervals: 1-6 months (19.35%), 7-9 months (29.03%), 10-13 months (29.03%), and 14-18 months (22.58%).
- Treatment modalities varied among participants, 6.5% underwent CT alone, while the majority (80.6%) underwent a combination of CT and surgery. Furthermore, 9.7% received a combination of CT, surgery, and HT/RT, and 3.2% underwent CT along with HT/RT.
- Trastuzumab, a targeted therapy, was the most administered drugs (22.6%) to the participants. Additionally, 19.4% received a combination of Trastuzumab and Docetaxel, while the same percentage received Paclitaxel alone. A smaller proportion, 6.5%, underwent treatment with a combination of Trastuzumab and Paclitaxel. Notably, Adriamycin and

Cyclophosphamide, another chemotherapy combination, were administered to 29.0% of participants.

- There exists a strong positive correlation between pre-Hopelessness and pre-CR ($r = 0.747$, $p < 0.01$), indicating that higher levels of hopelessness correlate with greater CR tendencies.
- Pre-CR shows a significant negative correlation with pre-ES scores ($r = -0.708$, $p < 0.01$), suggesting that individuals who engage more in CR tend to suppress emotions less.
- A strong negative correlation is observed between pre-BID and pre-CR($r = -0.870$, $p < 0.01$), indicating that higher levels of BID are associated with lower CR tendencies.
- Pre-ES scores demonstrate a significant positive correlation with pre-BID scores ($r = 0.676$, $p < 0.01$), suggesting that individuals with higher levels of BID are more inclined to suppress emotions.
- Almost all participants scored positively on hopelessness items such as "I can’t imagine what my life would be like in 10 years," "I expect to get more of the good things in life than the average person," and "The future seems vague and uncertain to me.", suggesting a theme of uncertainty about the future, likely influenced by the diagnosis and treatment of cancer.
- POST-HOPELESSNESS shows a moderately strong positive correlation with POST-BID ($r = 0.687$, $p < 0.001$), indicating higher hopelessness corresponds to greater BID.
- POST-HOPELESSNESS displays a strong negative correlation with POST-CR ($r = -0.711$, $p < 0.001$), suggesting increased hopelessness coincides with lower CR abilities.
- POST-HOPELESSNESS exhibits a moderate positive correlation with POST-ES ($r = 0.524$, $p = 0.002$), indicating heightened hopelessness relates to increased ES tendencies.
- POST-BID demonstrates a strong positive correlation with POST-CR ($r = -0.817$, $p < 0.001$) and a moderate positive correlation with POST-ES

(r = 0.593, p < 0.001), suggesting higher BID is linked to lower CR abilities and heightened ES.

- POST-CR exhibits a strong negative correlation with POST-ES (r = -0.590, p < 0.001), implying higher CR abilities are associated with lower ES tendencies.
- FU-HOPELESSNESS shows a moderately strong positive correlation with FU-BID (r = 0.606, p < 0.001) and a strong negative correlation with FU-CR (r = -0.700, p < 0.001), indicating higher hopelessness is associated with greater BID and lower CR abilities.
- FU-HOPELESSNESS exhibits a moderate positive correlation with FU-ES (r = 0.488, p = 0.005), suggesting heightened hopelessness relates to increased ES tendencies.
- FU-BID demonstrates a strong positive correlation with FU-CR (r = -0.754, p < 0.001) and a moderate positive correlation with FU-ES (r = 0.485, p = 0.006), indicating higher BID is linked to lower CR abilities and increased ES tendencies.
- FU-CR exhibits a strong negative correlation with FU-ES (r = -0.542, p = 0.002), suggesting higher CR abilities coincide with lower ES tendencies.
- Participants demonstrated a significant reduction in body image disturbance scores following CBT, as indicated by a decrease from a mean score of 9.58 (pre-intervention) to 6.61 (post-intervention). The decrease in standard deviation from 6.217 to 4.638 post-intervention suggests greater consistency in positive effects among participants.
- Statistical analysis revealed a significant difference between pre- and post-treatment groups, with a t-value of 7.517 and a p-value of 0.001, affirming the effectiveness of the intervention in mitigating body image disturbances.
- There was significant decrease in mean hopelessness score from 8.00 (PRE-Hopelessness), to 6.61 post-intervention (POST-Hopelessness).

The standard deviation also decreased from 2.793 to 2.472 after the intervention, indicating a more consistent effect among participants.

- Statistical analysis revealed a significant difference in mean scores between pre- and post-treatment groups, with a calculated t-value of 6.281 and a p-value of 0.001, confirming the effectiveness of the intervention in reducing feelings of hopelessness.
- Participants' mean CR score was 25.16 before the intervention (PRE-CR) and slightly decreased to 24.94 after the CBT intervention (POST-CR). There was a marginal reduction in standard deviations from 6.924 to 6.255 from pre- to post-CBT.
- Statistical analysis revealed a non-significant difference between pre- and post-treatment groups, with a t-value of .677 and a p-value of 0.504, suggesting that CBT did not significantly alter participants' CR abilities.
- Participants had an average emotional suppression (ES) score of 19.29 before the intervention (PRE-ES), which decreased to 16.29 after CBT. (POST-ES). The standard deviation also decreased from 5.126 to 4.466 from pre- to post-treatment.
- Statistical analysis revealed a significant difference in mean scores between pre- and post-treatment groups, with a t-value of 8.569 and a p-value of 0.001, indicating that CBT effectively reduced ES among participants undergoing treatment for breast cancer.
- The mean body image disturbance score decreased from 6.61 in POST-BID to 6.10 in the FU-BID. The standard deviation also decreased, from 4.638 in the post-treatment to 4.028 in follow-up.
- The statistically significant difference, with a t-value of 2.633 and a p-value of 0.013, signifies an improvement in BID scores between the post-treatment and follow-up groups. This suggests that the CBT intervention has effectively retained its efficacy over time.
- The mean hopelessness score slightly decreased from 6.61 in the post-treatment (POST-HOPELESSNESS) to 6.26 in the FU-

HOPELESSNESS. Standard deviation decreased from 2.472 in the post-treatment group to 1.807 in the follow-up group.

- The lack of statistical significance, with a t-value of 1.941 and a p-value of 0.062, implies that the effect of the 8-week therapy did not sustain after 2 months for Hopelessness.
- The mean score for CR in the post-treatment (POST-CR) was 24.94, with a standard deviation of 6.255. However, in the follow-up (FU-CR), the mean score increased to 27.03, with a standard deviation of 5.437.
- This change was statistically significant, with a t-value of -7.714 and a p-value of 0.001, indicating a substantial improvement in CR scores from the post-treatment to the follow-up period, suggesting the efficacy of CBT in long run in improving adaptive way of emotional regulation.
- In the post-treatment group (POST-ES), participants had a mean expressive suppression score of 16.29, with a standard deviation of 6.255, while in the follow-up group (FU-ES), the mean score was slightly lower at 15.06, with a standard deviation of 5.437.
- The difference between the POST- ES and FU- ES was statistically significant, with a t-value of 2.942 and a p-value of 0.006, indicating a decrease in ES from post-treatment to follow-up.
- Pre-CR emerged as a significant predictor of pre-BID scores ($\beta = -.870$, $p < 0.001$).
- Pre-hopelessness and pre- ES did not demonstrate a statistically significant predicting relationship with pre-BID scores ($p > 0.05$).
- Pre-CR emerged as a significant predictor of pre-hopelessness ($\beta = -.870$, $p < 0.001$).
- Pre- BID and pre-ES did not show a statistically significant predicting relationship with pre-hopelessness ($p > 0.05$).

To conclude, this study demonstrated that Cognitive Behavioral Therapy (CBT) had significant positive outcomes in mitigating body image disturbances and reducing emotional suppression among patients diagnosed with breast cancer, with these benefits extending even into the follow-up period. Importantly, CBT effectively reduced feelings of hopelessness immediately post-intervention. However, this effect was not sustained in the follow-up phase, underscoring the potential need for ongoing support or booster sessions to maintain improvements in hopelessness over time.

Interestingly, while the impact of CBT on cognitive reappraisal was not immediately apparent post-intervention, it became evident at follow-up, suggesting that cognitive reappraisal skills developed through CBT may require time to manifest and can be considered a learned skill that improves with ongoing practice.

The study also contributed significantly to the understanding of predictors of body image disturbances and hopelessness, providing valuable insights into the mechanisms through which CBT can affect psychological outcomes in breast cancer patients. Additionally, this research has filled critical gaps in our understanding of how such interventions can be adapted and applied within specific cultural contexts, particularly in the Punjabi culture. The insights gained from this research can be instrumental in formulating a comprehensive CBT plan tailored specifically for mitigating body image disturbances, reducing feelings of hopelessness, and promoting effective emotional regulation in patients with BC. By integrating these findings, practitioners can develop targeted strategies that address these critical areas, ensuring that the therapeutic interventions are both culturally sensitive and adapted to meet the unique needs of this patient population. This strategic approach will likely enhance the overall efficacy of mental health support for individuals undergoing treatment for breast cancer, contributing to improved psychological outcomes and a better quality of life.

FUTURE DIRECTIONS

The current study has demonstrated the effectiveness of Cognitive Behavioral Therapy (CBT) in addressing Body Image Disturbance, Emotional Regulation, and Hopelessness among breast cancer patients. To further advance our understanding, future research endeavors could explore the efficacy of CBT specifically within the Punjabi population, employing larger sample sizes and encompassing individuals from diverse backgrounds.

Investigating the association between socio-demographic factors and study variables could provide valuable insights. Moreover, examining the association between treatment modalities, cancer stage, and study variables, particularly BID and hopelessness would shed light on the impact of medical interventions on psychosocial well-being.

Furthermore, a mixed-methods approach, combining quantitative measures with qualitative insights, could offer a comprehensive understanding of patient lived experiences after being diagnosed with breast cancer.

A comparative analysis can be conducted on the study variables of Body Image Disturbance (BID), Hopelessness, and Emotional Regulation (ER) between breast cancer patients and individuals diagnosed with other types of cancer. This comparison would offer insights into how these psychological factors manifest in various oncological contexts, thereby enhancing our understanding of the psychosocial impact of different cancer diagnoses.

Similarly, a comparative analysis can be conducted to explore the impact of Cognitive Behavioral Therapy (CBT) on key study variables, including Body Image Disturbance (BID), Hopelessness, and Emotional Regulation (ER), among two distinct groups: breast cancer patients and individuals diagnosed with other types of cancer. By examining how CBT influences these variables across different cancer populations, valuable insights can be gained into the efficacy and suitability of CBT interventions in

addressing psychosocial challenges associated with cancer diagnosis and treatment.

A comparative study could also be conducted to assess the effectiveness of CBT compared to other psychosocial interventions, such as mindfulness-based therapies or Acceptance and Commitment Therapy (ACT), in reducing body image disturbances, and hopelessness, and improving emotional regulation.

Additionally, warranted longitudinal studies could be carried out to assess the long-term effects of CBT interventions on psychosocial outcomes among breast cancer patients.

One promising avenue is the integration of family-based interventions, which can offer valuable support systems and address interpersonal dynamics that may influence psychological outcomes. By incorporating family members or caregivers into therapy sessions, patients can benefit from increased social support, improved communication, and a better understanding of their experiences. Additionally, incorporating elements such as expressed emotions within CBT sessions can provide a platform for patients to express their feelings openly and receive validation from their loved ones.

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SOCIO-DEMOGRAPHIC PROFORMA

S.NO: - **Date:**

1. NAME:

2. AGE:

3. SEX: - Male/ Female

4. MRD.NO: -

5. Education-

a) Illiterate b) Up to Matric
c) 10th d) 12th e) Graduate f) Postgraduate

6. Marital Status

7. Occupation-

a) Farmer/Clerical/Shopkeeper b) Semi-skilled/skilled worker c) Unemployed d) Other
e) Professional f) Student

8. Address- a) Urban b) Rural

9. Contact no.-

10. Family Type- a) Nuclear b) Joint

11. Education of head of family

a) Illiterate b) Primary school c) Middle school d) High school
e) Intermediate/diploma f) Graduate
g) Professional degree

12. Occupation of head of family: a) Unemployed
b) Unskilled worker c)Semi-skilled worker d) Skilled worker e)Clerical/shop/farmer f) Semi-professional g)Professional

13. Family income per month (Rs.):

≤1033
1034-3071
3072-5199
5120-7680
7681-10240
10241-20481
≥20,482

14. Time since Diagnosis:

14. Stage of Cancer:

16. Treatment modality:

17. Medicine:

18. SCALES:
The Body Image Scale (BIS) SCORE=
The Emotion Regulation Questionnaire (ERQ) SCORE =
.Beck Hopelessness Scale (BHS) SCORE=

19. **PSYCHOTHERAPEUTIC INTERVENTIONS:**

	BIS	ERQ		BHS
		CR	ES	
PRE-INTERVENTION SCORES				
SESSION 1				
SESSION 2				
SESSION 3				
SESSION 4				
SESSION 5				
SESSION 6				
SESSION 7				
POST INTERVENTION SCORES				
FOLLOW UP SCORES				

CONTACT NO.

BODY IMAGE SCALE

In this questionnaire you will be asked how you feel about your appearance, and about any changes that may have resulted from your disease or treatment. Please read each item carefully, and place a firm tick on the line alongside the reply which comes closest to the way you have been feeling about yourself, during the past week.

Not at A little Quite Very all a bit much Not Applicable

Have you been feeling self.concious about your appearance?

Have you felt less physically attractive as a result of your disease or treatment?

Have you been dissatisfied with your appearance when dressed?

Have you been feeling less feminine; masculine as a result of your disease or treatment?

Did you find it difficult to look at yourself naked?

Have you been feeling less sexually attractive as a result of your disease or treatment?

Did you avoid people because of the way you felt about your appearance?

Have you been feeling the treatment has left your body less whole?

Have you felt dissatisfied with your body? Have you been dissatisfied with the appearance of your scar?

EMOTIONAL REGULATION QUESTIONNAIRE

Instructions and Items: We would like to ask you some questions about your emotional life, in particular, how you control (that is, regulate and manage) your emotions. The questions below involve two distinct aspects of your emotional life. One is your emotional experience, or what you feel like inside. The other is your emotional expression, or how you show your emotions in the way you talk, gesture, or behave. Although some of the following questions may seem similar to one another, they differ in important ways. For each item, please answer using the following scale:

1	2	3	4	5	6	7
strongly disagree			**neutral**			**strongly agree**

1. _____When I want to feel more positive emotion (such as joy or amusement), I change what I'mthinking about.
2. ____I keep my emotions to myself.
3. ____When I want to feel less negative emotion (such as sadness or anger), I change what I'mthinking about.
4. ____When I am feeling positive emotions, I am careful not to express them.
5. _____When I'm faced with a stressful situation, I make myself think about it in a way that helps mestay calm.
6. ____I control my emotions by not expressing them.
7. ____When I want to feel more positive emotion, I change the way I'm thinking about the situation.
8. ____I control my emotions by changing the way I think about the situation I'm in.
9. ____When I am feeling negative emotions, I make sure not to express them.
10. _____When I want to feel less negative emotion, I change the way I'm thinking about the situation.

Scoring:

Items 1, 3, 5, 7, 8, 10 make up the Cognitive Reappraisal facet.

Items 2, 4, 6, 9 make up the Expressive Suppression facet. Scoring is kept continuous. Each facet's scoring is kept separate

BECK'S HOPELESSNESS INVENTORY

The following is a self-report inventory designed to measure levels of hopelessness. Please answer each question by circling true or false based on how you have been feeling in the past weeks, including today.

1. I look forward to the future with hope and enthusiasm. TRUE FALSE
2. I might as well give up because I can't make things better for myself. TRUE FALSE
3. When things are going badly, I am helped by knowing they can't stay that way forever. TRUE FALSE
4. I can't imagine what my life would be like in 10 years. TRUE FALSE
5. I have enough time to accomplish the things I most want to do. TRUE FALSE
6. In the future, I expect to succeed in what concerns me most. TRUE FALSE
7. My future seems dark to me. TRUE FALSE
8. I expect to get more of the good things in life than the average person. TRUE FALSE
9. I just don't get the breaks, and there's no reason to believe I will in the future.. TRUE FALSE
10. My past experiences have prepared me well for my future. TRUE FALSE
11. All I can see ahead of me is unpleasantness rather than pleasantness. TRUE FALSE
12. I don't expect to get what I really want. TRUE FALSE
13. When I look ahead to the future, I expect I will be happier than I am now. TRUE FALSE
14. . Things just won't work out the way I want them to. TRUE FALSE
15. I have great faith in the future. TRUE FALSE
16. I never get what I want so it's foolish to want anything. TRUE FALSE
17. It is very unlikely that I will get any real satisfaction in the future. TRUE FALSE
18. The future seems vague and uncertain to me. TRUE FALSE
19. I can look forward to more good times than bad times. TRUE FALSE
20. There's no use in really trying to get something I want because I probably won't get it TRUE FALSE

S. No	NAME	AGE	MRD NO	MARITAL STATUS	EDUCATION	OCCUPATION	ADDRESS	CONTACT NO.	FAMILY TYPE	EDUCATION OF THE HEAD OF FAMILY	OCCUPATION OF HEAD OF FAMILY	MONTHLY INCOME	SES	TIME SINCE DIAGNOSIS	STAGE OF CANCER
1	R.M.	47	815719	Married	12th	Unemployed	Urban	6374372628	Joint	Graduate	Technicians and associate professionals	≥20,482	Upper class	9 MONTHS	III
2	S.	40	1730151	Widowed	12th	CLERKS	Urban	7579903897	Nuclear	Graduate	Professionals	≥20,482	Upper class	7 MONTHS	III
3	M.R.	56	77242	Married	Upto 10th	Unemployed	Rural	9761506224	Nuclear	Graduate	Skilled agricultural and fishery workers	7681–10,240	Upper middle class	9 MONTHS	II
4	S.R.	43	1519369	Married	Graduate	Unemployed	Rural	6837607147	Nuclear	Graduate	Skilled agricultural and fishery workers	≥20,482	Upper middle class	10 MONTHS	III
5	K.R.	38	1513422	Married	10th	Unemployed	Rural	9417744441	Joint	High school certificate	Skilled workers and shop and market sales workers	10,241–20,481	Upper middle class	6MONTHS	II
6	M.N.	50	1472195	Married	Graduate	Unemployed	Urban	9805378343	Nuclear	Graduate	Professionals	≥20,482	Upper class	14 MONTHS	III
7	A.B.	49	1395502	Married	PG	PROFFESIONal	Urban	9876143213	Nuclear	Profession or honors	Legislators, senior officials, and managers	≥20,482	Upper class	8 MONTHS	II
8	S.	59	1553385	Married	10th	Unemployed	Rural	9012345678	Nuclear	Primary school certificate	Elementary occupation	5120–7680	Upper lower class	9 MONTHS	II
9	S.K.	58	1849832	Married	12th	Unemployed	Rural	7654321098	Joint	Intermediate or diploma	Clerks	10,241–20,481	Upper middle class	13 MONTHS	III
10	S.R.	49	710472	Married	PG	PROFFESIONal	Urban	8901234567	Nuclear	Graduate	Professionals	≥20,482	Upper class	13 MONTHS	II
11	S.V.	44	1516009	Married	Graduate	Unemployed	Urban	9872616456	Nuclear	Graduate	Professionals	≥20,482	Upper class	9 MONTHS	II
12	G.R.	60	1261537	Widowed	10th	Unemployed	Urban	8123456789	Nuclear	Graduate	Professionals	≥20,482	Upper class	9 MONTHS	III
13	A.V.	59	1555033	Married	12th	Unemployed	Urban	8283079470	Nuclear	High school certificate	Skilled workers and shop and market sales workers	10,241–20,481	Upper middle class	11 MONTH5	II
14	S.R.	37	1447026	Married	PG	PROFFESIONal	Urban	NA	Nuclear	Graduate	Professionals	≥20,482	Upper class	9 MONTHS	I
15	M.K.	51	1365479	Married	PG	PROFFESIONal	Urban	9463791663	Nuclear	Graduate	Technicians and associate professionals	≥20,482	Upper class	11 MONTHS	III
16	G.K.	49	1406398	Married	Upto 10th	Unemployed	Rural	9815092088	Nuclear	Intermediate or diploma	Technicians and associate professionals	≥20,482	Upper class	10 MONTHS	I
17	D.K.	59	32411	Married	Upto 10th	Unemployed	Urban	9464770851	Nuclear	Middle school certificate	Skilled workers and shop and market sales workers	7681–10,240	Lower middle class	5 MONTHS	III

S. No	NAME	TREATMENT MODALITY	PHARMACOLOGICAL TREATMENT HISTORY	PRE- BIS	POST-BIS	FU-BIS	PRE- HOPELESNESS	POST- HOPELESSNESS	FU- HOPELESSNESS	PRE- CR	POST- CR	FU- CR	PRE-ES	POST- ES	FU- ES
1	R.M.	CHEMOTHERAPY, SURGERY	Adriamycin and cyclophosphamide	19	12	10	10	8	7	14	15	20	23	22	18
2	S.	CHEMOTHERAPY, SURGERY	TRASTUZUMAB + DOCETAXEL	20	11	12	13	8	8	10	12	17	25	20	18
3	M.R.	CHEMOTHERAPY, SURGERY	PACILATEXEL	15	9	7	10	6	5	18	21	24	24	16	15
4	S.R.	CHEMOTHERAPY, SURGERY	TRASTUZUMAB + DOCETAXEL	7	4	3	6	7	6	30	24	26	13	12	13
5	K.R.	CHEMOTHERAPY	TRASTUZUMAB + DOCETAXEL	11	6	5	13	10	8	21	23	27	25	19	18
6	M.N.	CHEMOTHERAPY, SURGERY	PACILATEXEL	9	5	5	6	5	6	32	32	34	22	20	16
7	A.B.	CHEMOTHERAPY, SURGERY	TRASTUZUMAB	14	8	7	10	8	7	20	24	26	20	17	15
8	S.	CHEMOTHERAPY	PACILATEXEL	4	3	3	5	4	5	30	31	30	16	12	14
9	S.K.	CHEMOTHERAPY, SURGERY	TRASTUZUMAB + DOCETAXEL	5	4	4	6	6	6	27	26	28	16	10	13
10	S.R.	CHEMOTHERAPY, OTHER (RT/ HT)	Other	4	3	3	5	3	4	26	26	27	13	13	11
11	S.V.	CHEMOTHERAPY, SURGERY, OTHER (RT/ HT)	TRASTUZUMAB + DOCETAXEL	9	7	6	7	6	6	35	32	35	14	13	12
12	G.R.	CHEMOTHERAPY, SURGERY	TRASTUZUMAB	12	8	7	11	10	9	19	20	21	19	16	15
13	A.V.	CHEMOTHERAPY, SURGERY	PACILATEXEL	9	7	6	6	4	3	31	30	34	17	14	14
14	S.R.	CHEMOTHERAPY, SURGERY	TRASTUZUMAB + PACILATEXEL	3	1	2	4	3	3	33	33	33	14	12	11
15	M.K.	CHEMOTHERAPY, SURGERY	TRASTUZUMAB	7	5	5	5	4	5	25	26	27	19	17	15
16	G.K.	CHEMOTHERAPY, SURGERY	TRASTUZUMAB	3	3	3	5	3	4	32	30	32	11	10	9
17	D.K.	CHEMOTHERAPY, SURGERY	TRASTUZUMAB + PACILATEXEL	11	8	9	10	9	9	22	20	22	18	17	16

S. No	NAME	AGE	MRD NO	MARITAL STATUS	EDUCATION	OCCUPATION	ADDRESS	CONTACT NO.	FAMILY TYPE	EDUCATION OF THE HEAD OF FAMILY	OCCUPATION OF HEAD OF FAMILY	MONTHLY INCOME	SES	TIME SINCE DIAGNOSIS	STAGE OF CANCER
18	S.K.	50	1223540	Widowed	10th	Unemployed	Rural	9317510392	Joint	Middle school certificate	Skilled agricultural and fishery workers	7681–10,240	Lower middle class	6 MONTHS	III
19	K.	45	949130	Married	12th	PROFFESIONS	Urban	6345678901	Nuclear	Graduate	Professionals	≥20,482	Upper class	3 MONTHS	I
20	H.K.	37	1516046	Married	10th	Unemployed	Urban	9815945933	Nuclear	High school certificate	Craft and related trade worker	10,241–20,481	Upper middle class	4 MONTHS	II
21	S.K.	39	1512036	Widowed	10th	Unemployed	Urban	9815945933	Nuclear	High school certificate	Clerks	10,241–20,481	Upper middle class	11 MONTHS	II
22	K.	35	1592291	Married	12th	CLERKS	Urban	9990618832	Nuclear	Graduate	Professionals	≥20,482	Upper class	13 MONTHS	II
23	A.	32	1408186	Married	12th	Unemployed	Rural	9313875953	Nuclear	Intermediate or diploma	Craft and related trade worker	7681–10,240	Lower middle class	10 MONTHS	III
24	A.S.	51	1014423	Widowed	12th	CLERKS	Urban	9911660542	Nuclear	Graduate	Professionals	≥20,482	Upper class	7 MONTHS	II
25	B.K.	60	1577181	Married	Upto 10th	Unemployed	Rural	6773993342	Joint	Middle school certificate	Elementary occupation	7681–10,240	Lower middle class	16 MONTHS	III
26	N.K.	54	140742	Married	Upto 10th	Unemployed	Urban	9814117050	Nuclear	Graduate	Skilled agricultural and fishery workers	10,241–20,481	Upper middle class	18 MONTHS	II
27	M.G.	42	1511207	Married	Graduate	PROFFESIONS	Urban	7856387012	Nuclear	High school certificate	Clerks	≥20,482	Upper middle class	16 MONTHS	III
28	P.K.	57	1657824	Married	Upto 10th	SKILED AGRICULATURAL AND FISHERY WORKER	Rural	NA	Joint	Middle school certificate	Craft and related trade worker	10,241–20,481	Upper middle class	7.5 MONTHS	III
29	D.J.	40	1508757	Married	12th	Unemployed	Urban	NA	Nuclear	Profession or honors	Legislators, senior officials, and managers	≥20,482	Upper class	5 MONTHS	II
30	R.S.	60	1406204	Widowed	Upto 10th	Unemployed	Rural	NA	Nuclear	Graduate	Clerks	≥20,482	Upper middle class	14 MONTHS	III
31	K.K.	49	1282002	Married	Graduate	PROFFESIONal	Urban	NA	Nuclear	Graduate	Professionals	≥20,482	Upper class	16 MONTHS	II

S. No	NAME	TREATMENT MODALITY	PHARMACOLOGICAL TREATMENT HISTORY	PRE- BIS	POST-BIS	FU-BIS	PRE- HOPELESNESS	POST- HOPELESSNESS	FU- HOPELESSNESS	PRE- CR	POST- CR	FU- CR	PRE-ES	POST- ES	FU- ES
18	S.K.	CHEMOTHERAPY, SURGERY, OTHER (RT/ HT)	TRASTUZUMAB	14	12	9	12	10	9	19	18	19	23	20	19
19	K.	CHEMOTHERAPY, SURGERY	TRASTUZUMAB + DOCETAXEL	5	4	5	5	4	5	31	29	31	17	14	15
20	H.K.	CHEMOTHERAPY, SURGERY	Adriamycin and cyclophosphamide	25	18	16	13	10	9	13	13	17	28	22	15
21	S.K.	CHEMOTHERAPY, SURGERY	Adriamycin and cyclophosphamide	25	21	19	11	12	9	12	12	17	27	23	19
22	K.	CHEMOTHERAPY, SURGERY	Adriamycin and cyclophosphamide	7	4	5	8	7	6	25	24	25	18	12	15
23	A.	CHEMOTHERAPY, SURGERY	TRASTUZUMAB	8	7	6	8	6	5	28	27	30	21	17	16
24	A.S.	CHEMOTHERAPY, SURGERY	Adriamycin and cyclophosphamide	16	12	10	8	7	7	21	22	25	24	21	21
25	B.K.	CHEMOTHERAPY, SURGERY, OTHER (RT/ HT)	Adriamycin and cyclophosphamide	5	4	4	6	5	5	31	31	31	22	19	19
26	N.K.	CHEMOTHERAPY, SURGERY	PACILATEXEL	5	5	4	12	11	9	27	27	28	22	21	20
27	M.G.	CHEMOTHERAPY, SURGERY	Adriamycin and cyclophosphamide	5	3	3	6	6	6	24	22	24	25	21	18
28	P.K.	CHEMOTHERAPY, SURGERY	Adriamycin and cyclophosphamide	6	4	5	7	6	5	32	31	33	13	10	11
29	D.J.	CHEMOTHERAPY, SURGERY	TRASTUZUMAB	6	3	3	6	5	5	29	29	30	26	24	17
30	R.S.	CHEMOTHERAPY, SURGERY	PACILATEXEL	3	1	1	7	6	6	30	30	31	14	13	12
31	K.K.	CHEMOTHERAPY, SURGERY	Adriamycin and cyclophosphamide	5	3	2	7	6	7	33	33	34	9	8	7

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No. BFUHS/2K24p-TH/ 1009 Date 22/4/24

The Principal,
Dayanand Medical College ,
Ludhiana.

Subject: **Approval of Plan of Thesis.**

This is to inform you that the Faculty of Medical Sciences in its meeting held on 22.01.2024 has approved the plan of thesis of **Ms. Sadiya Tabreek**, a student of your college for **M.Phil. (Clinical Psychology)** along with the names of Supervisor/Co-Supervisor as under:-

Topic Plan of Thesis
Effect of cognitive behavioral therapy on body image disturbance, emotional regulation, and hopelessness in patients with cancer .

Supervisor
Dr Bholeshwar Prasad Mishra
Prof. & Head,
Dept. of Clinical Psychology

Co-Supervisor
Dr. Kunal Jain
Asst. Professor
Dept. of Oncology
Dr. Palak Upadhyay
Asst. Professor
Dept. of Clinical Psychology

The student has to submit the three copies of thesis (along with PDF format) , to the Controller of Examinations, BFUHS, Faridkot, at least six months before the commencement of theory examination, if he/she is otherwise eligible to take the examination. He /She must directed to attach a photocopy of this letter with the forwarding letter while submitting thesis to the University along with the letter of approval of University for change of supervisor/Co-Supervisor, change of topic,(if any).

Controller of Examinations

Note :

1. *If any discrepancy found regarding topic of thesis or Supervisor/Co-Supervisor, inform undersigned within one month after Issue of this letter.*

EFFECT OF CBT ON BODY IMAGE DISTURBANCE, EMOTIONAL REGULATION, AND HOPELESSNESS IN PATIENTS WITH CANCER

DISSERTATION PROPOSAL

FOR APPROVAL OF SUBJECT OF DISSERTATION TO BE SUBMITTED

IN PARTIAL FULFILMENT OF THE REQUIREMENTS

FOR THE DEGREE OF

M. PHIL

IN

CLINICAL PSYCHOLOGY

OF THE

BABA FARID UNIVERSITY OF HEALTH SCIENCES

FARIDKOT

MARCH, 2023

SADIYA TABREEK

DEPARTMENT OF CLINICAL PSYCHOLOGY
DAYANAND MEDICAL COLLEGE AND HOSPITAL
LUDHIANA

ABSTRACT OF PLAN OF DISSERTATION

Title	EFFECT OF COGNITIVE BEHAVIORAL THERAPY ON BODY IMAGE DISTURBANCE, EMOTIONAL REGULATION, AND HOPELESSNESS IN PATIENTS WITH CANCER
For the degree of	M. Phil Clinical Psychology
Name of the candidate	Ms. Sadiya Tabreek
Supervisor	Dr. Bholeshwar Prasad Mishra, Professor & Head, Department of Clinical Psychology, DMCH, Ludhiana
Co-supervisors	Dr. Kunal Jain, Assistant Professor, Department of Oncology, DMCH, Ludhiana Palak Upadhyay, Assistant Professor, Department of Clinical Psychology, DMCH, Ludhiana
Institution	Dayanand Medical College & Hospital, Ludhiana
University	Baba Farid University of Health Sciences, Faridkot

Introduction: Breast cancer (BC) is the commonest malignancy among women globally. It is ranked as one of the most prevalent forms of cancer in India. Epidemiological studies have shown that the global burden of BC is expected to cross almost 2 million by the year 2030. Because of the importance of the breast in a woman's body image, sexuality, and motherhood, mastectomy can be very stressful for these patients. Chemotherapy can lead to various side effects such as hair loss, nausea, fatigue, insomnia, and pain which could result in diminished self-worth and body image concerns. Interventions aimed at reducing patients' distress could result in improved QOL, better social functioning, and better progress of the disease. Cognitive behavioral techniques such as cognitive restructuring, relaxation, skills training, visual imagery, etc. have been linked to alleviating these concerns.

Aim of Study: 1. To study the pre-and post-effect of Cognitive behavioural therapy (CBT) on body image disturbance in patients with breast cancer. 2. To study the pre-and post-effect of Cognitive behavioural therapy (CBT) on emotional regulation in patients with breast cancer 3. To study the pre-and post-effect of Cognitive behavioural therapy (CBT) on hopelessness in patients with breast cancer.

Materials & Methods: The study will be conducted on 30 female cancer patients within the age group of 18-60 years undergoing chemotherapy or have undergone surgery admitted in oncology ward or visiting oncology OPD at Dayanand Medical College and Hospital. Psychological evaluation will be done using The Body Image Scale (BIS), Emotion Regulation Questionnaire (ERQ), and Beck Hopelessness Scale (BHS). Seven sessions in total will be carried out for addressing body image disturbance, hopelessness and adaptive way of regulating emotions.

Clinical Significance: The findings will help in contributing to therapeutic intervention addressing concerns about body image, emotional regulation, and a sense of hopelessness in patients with cancer undergoing chemotherapy or have undergone surgery and would address the ways to overcome these problems.

Keywords: Body Image, Breast Cancer, Chemotherapy, Emotional Distress, Emotion Regulation, Hopelessness, Mastectomy.

(Signature) Candidate | (Signature) Co-supervisor | (Signature) Co-supervisor | (Signature) Supervisor | (Signature) Principal

CERTIFICATE OF FACILITIES AVAILABLE

This is to certify that the facilities for work on the subject of dissertation titled **"EFFECT OF COGNITIVE BEHAVIORAL THERAPY ON BODY IMAGE DISTURBANCE, EMOTIONAL REGULATION, AND HOPELESSNESS IN PATIENTS WITH CANCER"** exist in the Department of Clinical Psychology, DMC&H, Ludhiana, and will be provided to the candidate. We will see that the data included in the dissertation is genuine and is collected by the candidate herself under our supervision and guidance.

Supervisor

Dr. Bholeshwar Prasad Mishra
Professor & Head
Department of Clinical Psychology
DMCH, Ludhiana

Co-Supervisors

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Assistant Professor
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Head of the Department

Dr. Bholeshwar Prasad Mishra
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Clinical Psychology Department
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Place: _____

Date: _____

APPROVAL PROFORMA BY RESEARCH & ETHICAL COMMITTEE
DAYANAND MEDICAL COLLEGE & HOSPITAL, LUDHIANA

Name of candidate	Ms. Sadiya Tabreek
Department	Clinical Psychology
Topic of Dissertation	EFFECT OF COGNITIVE BEHAVIORAL THERAPY ON BODY IMAGE DISTURBANCE, EMOTIONAL REGULATION, AND HOPELESSNESS IN PATIENTS WITH CANCER
Likely date of appearing in PG examination	June, 2024
Date of enrollment	08.08.2022
Name of Head of Department	Dr. Bholeshwar Prasad Mishra
1) Supervisor **2) Co-Supervisor(s)**	Dr. Bholeshwar Prasad Mishra Dr. Kunal Jain Palak Upadhyay
Signature of Members of Research Committee with Stamp	**Signature of Members of Ethics Committee with Stamp**
Dr. Harpreet Kaur (Professor & Head, Pathology)	Adv. Ankur Ghai (Legal Expert)
Dr. Jaspal Singh (Professor & Head, Surgery)	Dr. Suvir Singh (Associate Professor, Haematology)
Dr. Dinesh Gupta (Professor & Head, Medicine)	Dr. Ramit Mahajan (Professor, Gastroenterology)
Dr. Sandeep Kaushal (Dean Academics & Professor & Head, Pharmacology)	Dr. Ashvind Bawa (Professor, Surgery)
Dr. Gurpreet S Wander (Vice Principal)	Dr. Sandeep Kaushal (Professor & Head, Pharmacology)
	Dr. Gurpreet S Wander (Professor, Cardiology)
	Dr. Rajesh Mahajan (Secretary, Ethics Committee Professor, Medicine)

Approved: Yes / No

Dr. Sandeep Puri
Chairperson
Research Committee

Approved: Yes / ~~No~~

Prof. Arvind Malhotra
Chairperson
Ethics Committee

BABA FARID UNIVERSITY OF HEALTH SCIENCES, FARIDKOT

PROFORMA FOR REGISTRATION OF SUBJECT FOR DISSERTATION

1	NAME OF THE CANDIDATE AND ADDRESS	Ms. SADIYA TABREEK JAMIA NAGAR, DELHI, NEW DELHI 110025
2	NAME OF THE INSTITUTE	DAYANAND MEDICAL COLLEGE AND HOSPITAL, LUDHIANA
3	COURSE OF STUDY AND SUBJECT	M. PHIL. CLINICAL PSYCHOLOGY
4	DATE OF ADMISSION OF COURSE	08.08.2022
5	TITLE OF THE TOPIC	EFFECT OF COGNITIVE BEHAVIORAL THERAPY ON BODY IMAGE DISTURBANCE, EMOTIONAL REGULATION, AND HOPELESSNESS IN PATIENTS WITH CANCER

6. BRIEF RESUME OF THE INTENDED WORK

6.1 NEED FOR THE STUDY

Cancer is a large group of diseases that can start in almost any organ or tissue of the body when abnormal cells grow uncontrollably, go beyond their usual boundaries to invade adjoining parts of the body, and/or spread to other organs. It is the second leading cause of death in India, accounting for 63% of all deaths (Mathur et al., 2020).[1] The projected cancer burden in India for 2021 was 26.7 million and is expected to increase to 29.8 million in 2025. Breast cancer (BC) is the most common cancer among women. It is ranked as the one of the most prevalent forms of cancer in India. The mean age of women who are diagnosed with breast cancer in India is between 30 years to 50 years, which is approximately 10 years younger than patients in developed countries.[2] Due to this lower age, the prevalence of breast cancer in women in the fertility ages in India is relatively higher. Having cancer at this age may make them more vulnerable to psychological complications.

Breast Cancer treatment usually includes surgery, chemotherapy, radiation, hormone therapy, or a combination of these methods. Notwithstanding, medical treatment for cancer of all types is destructive by its very nature, often involving loss of body parts and/or challenging adjustments to functional limitations. These procedures often cause many adverse effects on cancer survivors' physical, psychological, and spiritual health. Alopecia, fatigue, nausea, and vomiting have been experienced after treatment, which can affect women's self-esteem and sense of sexual appeal. Breast cancer and its treatment may then have a significantly negative influence on the quality of life and self-esteem of women in the physical, mental, and social dimensions. Previous studies demonstrated that breast cancer chemotherapy and surgery survivors could experience arm dysfunction, body image adverse effects (e.g., malformation of one or both breasts and surgery scars); negative emotional responses, and higher

levels of anxiety owing to having undergone (Wu et al. 2021)[3] Body image disturbances in cancer patients could be associated with a variety of changes they incur after the surgical procedure; for example, changes in their interpersonal relationships, poor social functioning, and changes in their quality of life, as patients may experience reduced physical health and incur sexual dysfunctions (Wu et al. 2021)[3] In a qualitative study of how breast cancer treatment impacts sexuality, Wilmoth (2001)[4] found that surgery is often perceived by women as an assault on a key aspect of their sexual identity. Medical treatment of breast and ovarian cancer typically affects body parts associated with womanhood and femininity, causing considerable body changes that are likely to alter body image. After major surgical interventions such as mastectomy, many women experiences feeling different, such as appearing less physically appealing to their spouses or sensing that their attractiveness as a sexual partner will decrease and their sexual life will deteriorate.

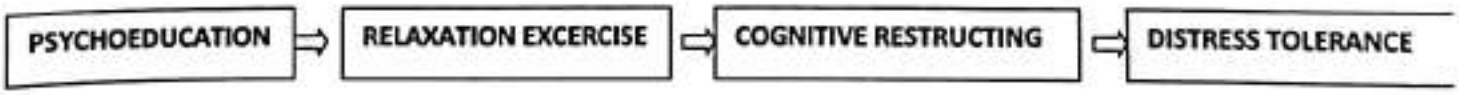
Although long periods of treatment, repeated hospitalizations, and side effects of chemotherapy and surgeries besides the insight of having cancer can all affect the psyche of the patient decreasing the quality of life, social functioning, and satisfaction with care; impeding medical compliance and increasing healthcare costs, it is often overlooked by treating physicians. Interventions aimed at reducing patients' distress are a necessity and could result in improved QOL, better social functioning, and better progress of the disease. Various studies have been carried out indicating that CBT is a beneficial therapy option that can be utilized for various cancer patients and for altering patients' psychological dysfunctions. In dealing with psychological distress, body image concerns, anxiety, and depression after medical treatment of cancer patients, cognitive-behavior therapy (CBT) was the most frequently employed and was utilized in various studies (Jun et al., 2011[5]). All CBT-based intervention studies reported significant improvement in body image outcomes post-intervention.

Although work has been undertaken in this arena, there is a lacuna of the same in the Indian population. Most current studies chose to explore either socio-psychological or physical factors of hopelessness (Grassi et al., 2010 [6]), but fewer studies have explored the relationship between psychological and physical factors and the abilities of the individual to cope with such stressors. Moreover, considerably lesser intervention-based studies have been carried out in India, dealing with the physical and emotional concerns of cancer patients undergoing medical treatment. The present research aims to work on understanding the psychological distress associated with body image disturbance among cancer patients undergoing medical treatment and the associated hopelessness. Studies from this perspective will have meaningful implications and will provide insights into developing a holistic care model which would not only help in reducing psychological stress associated with changes in body image but also will result in improving adherence and satisfaction with the treatment.

INTERVENTION TO BE USED IN THE STUDY

The present study would utilize cognitive behavioural techniques aimed at decreasing body image concern, and hopelessness and promoting adaptive ways of emotional regulation would be used. It has been identified as the gold standard among the intervention used in dealing with distress related to body image, hopelessness, and learning the adaptive way of emotional regulation in cancer patients. First corrective information would be provided regarding the interplay of emotions, thoughts, body sensations, and behaviours. This psychoeducational approach would be useful in making the participants become aware of the role of psycho-social factors in the progress of treatment. A handout with information about body image and questions to explore regarding one's belief about their body would be provided as homework. This would be followed by a session aimed at introducing A-B-C model of body image distress, understanding how these thoughts are created, and learning how to deal with them. The concept of positive affirmation would be introduced

and the patient would be asked to make a list of the same and practice it at home/ward. A strength exploration worksheet would be provided that would help the patient identify their strengths, and then explore their roles in different areas of life which would improve their well-being. The intervention would also include emotional regulation, relaxation exercises (deep breathing, guided imagery and body scanning) and cognitive restructuring. These exercises involve restructuring techniques aimed at correcting the cognitive distortions about self. The concept of a thought diary would be introduced and the patient would be asked to maintain it. Worksheets on restructuring automatic thoughts and emotional regulation would be provided. In the subsequent sessions, intervention would aim to stop the negative body-related self-talk and increase distress tolerance. Negative body talk will be identified and worked upon. The patient would be asked to make a self-care activity schedule and follow it. Towards the end, a review of the course of therapy would be done, and a customized plan for using CBT to help reduce the risk of relapse or reach future goals would be made.



6.2 REVIEW OF LITERATURE

Cancer is a life-altering diagnosis. Surgery, radiation therapy, and chemotherapy can be effective in treating the tumour, but these modalities are not designed to treat the mental effects, which can be just as debilitating. The stress that results from a terminal illness, such as cancer, can be severe. Studies have shown that chemotherapy and surgeries are associated with altered many psychological effects. A plethora of research has discussed the adverse physiological and psychological effects of medical treatment for cancer. (Izci et al., 2016 [7]; O'Neil et al., 2018 [8]).

Greer et al., (1992)[9] carried out a clinical trial in which 174 patients aged 18-74 attending hospital with a confirmed diagnosis of malignant disease, a life expectancy of at least 12 months were randomly allocated to CBT or a no-treatment (care as usual) control group. At eight weeks, patients receiving therapy had significantly higher scores than control patients on fighting spirit and significantly lower scores on helplessness, anxious preoccupation, and fatalism; anxiety; psychological symptoms; and on orientation towards health care. These differences indicated improvement in each case.

Paterson et al., (2016)[10] in their systematic review of body image in younger breast cancer found that individuals with a better conceptualization of their body image tend to cope better with cancer and cancer-related treatments as improved mental health and QoL consistently found to lead to better treatment and disease outcomes. Age and treatment type were seen to have a significant impact on body image, and poorer body image was related to physical and psychological distress, sex and intimacy, and the partnered relationship among younger women.

Hesketh et al., (2004)[11] carried out a metanalysis to investigate chemotherapy-induced alopecia, its psychosocial impact, and therapeutic approaches. According to them, the impact of hair loss can be enormous. For some women, hair loss can have more of an impact than a

mastectomy, others are so distressed at facing the prospect of losing their hair that they may choose fewer effective therapies or opt for no treatment at all. Hair loss can also lead to using anxiety, depression, negative body image, lowered self-esteem, and a reduced sense of well-being. According to this review, when supporting patients with CIA, healthcare providers should use an individualized approach. Education, support groups, and self-care strategies were seen as important components of any management approach.

Greer, S (2008) [12] in his article based on his clinical experience, outlined the detrimental effect of a helpless coping response on the quality of life of cancer patients. Evidence also suggests that maladaptive coping response increases emotional distress and is an independent prognostic factor associated with a significantly increased risk of disease recurrence and death. He further highlights the role of CBT, which is based on the premise that patients' psychological responses to cancer depend not only on the physical effects of the disease but also on how the patient appraises cancer in dealing with the emotional distress of people with cancer.

Schlatter & Cameron, (2010)[13] examined emotional suppression tendencies as predictors of symptoms, mood, and coping appraisals during chemotherapy for cancer treatment. Forty participants completed a measure yielding scores for anxiety suppression, anger suppression, depression suppression, and total emotional suppression. They then reported their experiences of 34 physical symptoms, mood, and coping efficacy on a daily basis for the duration of treatment. Mixed model analyses revealed that emotional suppression predicted lower reports of symptoms that are vague, and well-known. Emotional suppression and particularly anger suppression predicted higher reports of symptoms relating to immune function and cardiovascular arousal with appraisals of poorer coping. The three suppression tendencies exhibited distinctive

patterns of relationships with symptoms, mood, and coping appraisals, suggesting that anxiety suppression, anger suppression, and depression suppression have partially independent relationships with symptomatic and mood processes.

Choi et al., (2014)[14] conducted research aimed at evaluating the impact of chemotherapy-induced alopecia (CIA) distress on body image, psychosocial well-being, and depression among breast cancer patients. One hundred sixty-eight breast cancer patients participated in the study; the mean age was 48.4 (SD = 8.4) years, and 55.3% of the patients experienced higher distress from alopecia. In fully adjusted models, the high-distress group was more likely to have a poorer body image than the low-distress group. Distressed patients were also more likely to report lower emotional, role, and social functioning. The high-distress group was also more likely to have depression compared with the low-distress group (19.6 vs. 14.8; $p < 0.001$).

Andreu et al., (2012)[15] conducted a study on 102 breast cancer survivors to identify the time evolution and prevalence of distress at specific times through diagnosis and treatment of the disease: preliminary diagnosis, surgery, definitive diagnosis and chemotherapy. Additionally, the study aimed to examine the role of demographic, medical and psychosocial factors on distress. Patterns of emotional suppression and specific coping responses like helplessness/hopelessness, anxious preoccupation, cognitive avoidance and fatalism were found to be positively related to distress, whereas fighting spirit and perceived social support showed a protective role. Moreover, helplessness/hopelessness and anxious preoccupation jointly predicted 75% of cases and 98% non-cases of distress.

Fingeret et al., (2013)[16] carried out a metanalysis with regard to the type of intervention that can be used in dealing with body image concerns in cancer patients. They provided an overview of theoretical models of body

image relevant to cancer patients, and presented findings from published literature on body image and cancer from 2003–2013. They integrated these data with information from the patient-doctor communication literature to delineate a practical approach for assessing and treating body image concerns of adult cancer patients. Age, body mass index, and specific cancer treatments was identified as potential risk factors for body image disturbance in cancer patients. Evidence also supported the use of time-limited cognitive-behavioral therapy interventions for addressing these difficulties. CBT was most frequently employed techniques leading to consistent positive effects on body image, self-esteem, and thoughts about illness were observed.

Peh et al., (2017)[17] examined the emotional regulation and emotional distress and the mediating role of hope on reappraisal and anxiety/depression in newly diagnosed 144 cancer patients. Path analysis was used to examine if hope mediated the association between reappraisal and anxiety/depression. The result indicated that the prevalence of anxiety was 39.6% and depression was 25.0%. Reappraisal and hope were correlated with lower anxiety and depression, whereas suppression was correlated with higher anxiety and depression. The study findings further suggested that hope mediated the association between reappraisal and anxiety/depression outcomes.

Putri Nanda Sari et al., (2019)[18] conducted research with the objective of identifying the effectiveness of CBT on increasing body image in nasopharyngeal cancer patients. The samples were 66 respondents: 33 of them were in the intervention group and the other 33 of them were in the control group, taken by using consecutive sampling technique The research used quasi- experimental method with an equivalent control group design. The result of the research, using statistic independent t-test, showed that there was a significant difference in the body image of nasopharyngeal cancer patients between intervention group and control

group in the post-intervention with CBT at p-value = 0.000 ($p < 0.05$), indicating that CBT was effective in increasing body image in nasopharyngeal cancer patients.

Anastacia Bosire et al., (2020)[19] investigated the psychological effects of chemotherapy on patients diagnosed with breast and cervical cancer. Quantitative data was collected from 157 systematically sampled participants. In addition, two focus group discussions were held by purposively selected participants. The result indicated that 65.6 % experienced psychological factors associated with body image changes, anxiety (79%), low self-esteem (63.1%), loneliness (55.4%), and sadness (51.6%).

Baziliansky & Cohen, (2020)[20] conducted a meta-analysis that sought to estimate the associations between emotion regulation patterns and psychological distress among cancer survivors. The systematic review pointed to a marked variability in associations among the emotion regulation patterns and psychological distress. The three meta-regressions of the relationships between suppression and psychological distress found significant fixed- and random-effect sizes. According to researchers, emotion regulation may affect the levels of psychological distress of cancer survivors. The study suggested that suppression is related to elevated levels of psychological distress among cancer survivors.

Esplen et al. (2020)[21] formulated an eight-week group intervention-Restoring Body Image after Cancer (ReBIC) developed to target body image distress for cancer survivors. The intervention incorporates three active components: psychotherapeutic group principles; guided imagery exercises to address BI; and psychoeducation. The therapeutic group was a supportive and effective way to assist breast cancer survivors to gain insight into body image impacts, The group also facilitated working through stages of grief over multiple losses. Guided

imagery was well-received, and appeared to help survivors identify negative and emerging self-schema, as well as facilitate new self-views.

Vani et al., (2021)[22] conducted a review on body image among adolescents and young adults diagnosed with cancer. Studies explored descriptive, psychological, physical, coping, and social factors of adults diagnosed with cancer. Overall, body image findings were consistent with previous research, with negative body image being associated with or described in relation to negative factors (e.g., depression, pain, avoidance of social activities) and positive body image associated with or described in relation to positive factors (e.g., quality of life, sex life satisfaction, physical activity). Notably, significant body image improvements were demonstrated for interventions and programs that varied in delivery length and method.

Thakur at al., (2022)[23] conducted a descriptive, cross-sectional study on 165 female survivors of BC who underwent MRM to measure their psychological distress. Results indicated that rates of depression, anxiety, and stress were 27·8%, 31·5%, and 24·8%, respectively. Most patients (92%) experienced body image disturbances, and BC survivors who completed treatment within 12 months were more likely ($p < 0·01$) to have body image disturbances than women who had a long time since completion of treatment. Body image disturbances were not associated with age or psychological distress.

The literature collected showed a detrimental impact of medical treatment on the body image of the cancer patient. In addition, medical treatment such as chemotherapy, surgery, radiotherapy also has an impact on patients' daily functioning and psychosocial indices including anxiety, coping, emotional regulation, distress, sense of hopelessness, and quality of life. The findings indicate the role of CBT in dealing with body image disturbance, hopelessness, and maladaptive way of emotional regulation.

6.3 AIMS AND OBJECTIVES OF THE STUDY

1. To study the pre- and post-effect of Cognitive behavioural therapy (CBT) on body image disturbance in patients with breast cancer.
2. To study the pre- and post-effect of Cognitive behavioural therapy (CBT) on emotional regulation in patients with breast cancer.
3. To study the pre-and post-effect of Cognitive behavioural therapy (CBT) on hopelessness in patients with breast cancer.

MATERIALS AND METHODS

7.1 SOURCE OF DATA

Study will be conducted on 30 female patients diagnosed with Breast cancer (Stage I, Stage II, Stage III) undergoing chemotherapy or have undergone surgery, admitted to the oncology ward, or visiting oncology OPD at Dayanand Medical College and Hospital.

7.2 METHOD OF COLLECTION OF DATA

STUDY DESIGN- Pre- and post-design.

SAMPLE SIZE- 30 female cancer patients within age group of 18-60 years.

SAMPLE DESIGN: Purposive sampling design will be used. The respondents who meet the inclusion criteria will be selected for the study.

INCLUSION CRITERIA

- A diagnosis of Breast cancer (Stage I, II, III) according to the oncologists
- Female patient of age between 18 and 60 years.
- Patient undergoing chemotherapy or have undergone surgery.
- Patients willing to give informed consent.
- Primary level education.

EXCLUSION CRITERIA

- Patients with any comorbid psychiatric illness.
- History of intellectual disability
- Major neurological disorder or communication disorder.
- Patients with any limb amputations.

DESCRIPTION OF THE TOOLS:

1. **Socio- demographic Performa:** A semi structured pro-forma was designed for the present study in order to collect detailed clinical history of each participant including information related to the following areas:
    - Socio-demographic details including age, gender, MRD number, occupation, education, income, marital status.
    - Phase of illness
    - Treatment modality
    - Scores of all the test
2. **The Body Image Scale (BIS):** The 10-item scale designed by Hopwood et al. (2000)[24] assesses changes in body image in patients diagnosed with cancer. The items are assessed on a four-point scale from "not at all" to "very much." The final score is the sum of the 10 items, ranging from 0 to 30. The cut-off point is set at ≥ 10 for distress regarding body image. More score indicates more body imaging disorder. The internal consistency correlation coefficient is 0.92, making the scale a reliable and valid measure. (Hopwood et al., 2001).[24]
3. **The Emotion Regulation Questionnaire (ERQ):** ERQ, developed by Gross and John (2003)[25] is a 10-item self-report measure of two emotion regulation strategies and cognitive reappraisal. The cognitive reappraisal facet is made up of six statements and the rest are of the expressive suppression facet. Respondents' answers are scored on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). The final scoring is done by taking the average of all the scores in each subscale of cognitive reappraisal and expressive suppression. The higher the score, the greater the use of that particular emotion regulation strategy, conversely lower scores represent less frequent use. Internal

consistency reliability ranges from α = .89-.90 for cognitive reappraisal (α = .89-.90) and for expressive suppression α = .76-.80 (Gross & John, 2003).[25]

4. **Beck Hopelessness Scale (BHS):** BHS developed by Beck et al., (1974)[26] is a self-assessment questionnaire designed to measure negative attitudes toward the future. It is composed of 20 dichotomous "true/false" items that aimed to assess three major aspects of hopelessness: feelings about the future, loss of motivation, and expectations. Total scores were created by first reverse-coding nine items (items 1, 3, 5, 6, 8, 10, 13, 15, 19) and then summing the item scores. Higher total scores indicate greater hopelessness (range 0–20). The internal reliability coefficients range from r = 0.82 to 0.93 (Beck A.T.).[26]

PROCEDURE

Baseline assessment- Informed consent will be taken from the participants meeting the inclusion criteria and willing to participate in the study. The participants who provide consent would then be required to fill in the socio-demographic proforma (Kuppuswamy, 2019) containing the basic information about the patient. The participants will then be evaluated on the Body Image Scale (BIS), The Emotion Regulation Questionnaire (ERQ), and Beck Hopelessness Scale (BHS). After the initial assessment, all the participants will undergo 7 weekly sessions of CBT of 40 minutes each. Post-intervention, participants will be revaluated on the baseline assessment tools. Scores will be compared and analysed using appropriate statistical methods.

Intervention appointment- This would consist of the following sessions:

Table 1. Session plan (based on Getu et al., 2022 [27] ; Faraji et al., 2015 [28])

S.NO	SESSION	AREA
1.	Baseline assessments	Detailed history will be taken, pre intervention assessments will be taken
2.	Session 1	Psychoeducation on the interplay of emotions, thoughts, body sensations, and behaviors, and how it impacts the treatment process. Handout with information about body image and questions exploring one's belief about their body would be provided as homework assignment.
3.	Session 2	Collect previous session assignments. Introduction of the adaptive way of regulating and coping with emotions. Introduction of relaxation techniques and behavioral activation.
4.	Session 3	Collect previous session assignments. Introduction of A-B-C model related to body image distress. Positive affirmation will be introduced.
5.	Session 4	Collect previous session assignments. Introduction of the concept of negative automatic thoughts. Introduction of thought diary to identify

		negative automatic thoughts.
6.	Session 5	Collect previous session assignments. Stopping negative body-related self-talk and developing alternative, balanced thoughts using cognitive restructuring. Worksheets will be provided for challenging negative Self-Talk and automatic thoughts.
7.	Session 6	Collect previous session assignments. Review of course of therapy; check for understanding of basic CBT concepts and procedures. Reinforce the importance of continued use of CBT self-help techniques. Develop a customized plan for using CBT to help reduce the risk of relapse or reach future goals.
8.	Session 7	Collect previous session assignments and termination. Review methods of changing automatic thoughts, behavioral techniques, and methods of changing schemas. Post-intervention assessment

OUTCOME:

In this study, it will be observed that the patient diagnosed with Cancer undergoing chemotherapy experience body image concerns due to hair loss, weight gain, the partial or entire removal of body parts, the misalignment and asymmetry of the breasts, significant scarring, and alteration. These body image concerns can lead to emotional distress in the patient which can be coped both adaptively or in a maladaptive way. A maladaptive way of dealing with stress will then lead to hopelessness in the cancer patient. Use of Cognitive Behaviour Therapy with patients diagnosed with cancer will yield positive results in terms of reducing body image disturbances, hopelessness, and changing maladaptive ways of emotional regulation. Although work has been undertaken in this arena there is a gap in the research on the same in the Indian population. Findings from this research will provide insight into the experiences of cancer patients undergoing medical treatment. The present research will pave the way to developing a holistic treatment model for cancer patients which will improve their quality of life.

STATISTICAL ANALYSIS:

Comparison of pre and post quantitative variables will be done using Paired t-test and Wilcoxon Rank test for independent samples for parametric and non-parametric data respectively. All statistical calculations will be done using (Statistical Package for the Social Science) SPSS 21version (SPSS Inc., Chicago, IL, USA) statistical program for Microsoft Windows.

7.3 DOES THE STUDY REQUIRE ANY INVESTIGATIONS OR INTERVENTIONS TO BE CONDUCTED ON PATIENTS OR OTHER HUMANS OR ANIMALS? IF SO, PLEASE DESCRIBE BRIEFLY.

No

7.4 HAS ETHICAL CLEARANCE BEEN OBTAINED FROM YOUR INSTITUTION IN CASE OF 7.3?

Yes, attached herewith

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SOCIO-DEMOGRAPHIC PROFORMA

S.NO: - **Date:**

1. NAME:

2. AGE:

3. SEX: - Male/ Female

4. MRD.NO: -

5. Education-

a) Illiterate b) Up to Matric
c) 10th d) 12th e) Graduate f) Postgraduate

6. Marital Status

7. Occupation-

a) Farmer/Clerical/Shopkeeper b) Semi-skilled/skilled worker c) Unemployed d) Other
e) Professional f) Student

8. Address- a) Urban b) Rural

9. Contact no.-

10. Family Type- a) Nuclear b) Joint

11. Education of head of family

a) Illiterate b) Primary school c) Middle school d) High school
e) Intermediate/diploma f) Graduate
g) Professional degree

12. Occupation of head of family: a) Unemployed
b) Unskilled worker c)Semi-skilled worker d) Skilled worker e)Clerical/shop/farmer f) Semi-professional g)Professional

13. Family income per month (Rs.):

≤1033
1034-3071
3072-5199
5120-7680
7681-10240
10241-20481
≥20,482

14. Time since Diagnosis:

14. Stage of Cancer:

16. Treatment modality:

17. Medicine:

18. SCALES:
The Body Image Scale (BIS) SCORE=
The Emotion Regulation Questionnaire (ERQ) SCORE =
.Beck Hopelessness Scale (BHS) SCORE=

19. **PSYCHOTHERAPEUTIC INTERVENTIONS:**

	BIS	ERQ		BHS
		CR	ES	
PRE-INTERVENTION SCORES				
SESSION 1				
SESSION 2				
SESSION 3				
SESSION 4				
SESSION 5				
SESSION 6				
SESSION 7				
POST INTERVENTION SCORES				
FOLLOW UP SCORES				

CONTACT NO.

BODY IMAGE SCALE

In this questionnaire you will be asked how you feel about your appearance, and about any changes that may have resulted from your disease or treatment. Please read each item carefully, and place a firm tick on the line alongside the reply which comes closest to the way you have been feeling about yourself, during the past week.

Not at A little Quite Very all a bit much Not Applicable

Have you been feeling self.concious about your appearance?

Have you felt less physically attractive as a result of your disease or treatment?

Have you been dissatisfied with your appearance when dressed?

Have you been feeling less feminine; masculine as a result of your disease or treatment?

Did you find it difficult to look at yourself naked?

Have you been feeling less sexually attractive as a result of your disease or treatment?

Did you avoid people because of the way you felt about your appearance?

Have you been feeling the treatment has left your body less whole?

Have you felt dissatisfied with your body? Have you been dissatisfied with the appearance of your scar?

EMOTIONAL REGULATION QUESTIONNAIRE

Instructions and Items: We would like to ask you some questions about your emotional life, in particular, how you control (that is, regulate and manage) your emotions. The questions below involve two distinct aspects of your emotional life. One is your emotional experience, or what you feel like inside. The other is your emotional expression, or how you show your emotions in the way you talk, gesture, or behave. Although some of the following questions may seem similar to one another, they differ in important ways. For each item, please answer using the following scale:

1	2	3	4	5	6	7
strongly disagree			**neutral**			**strongly agree**

1. _____When I want to feel more positive emotion (such as joy or amusement), I change what I'mthinking about.
2. ____I keep my emotions to myself.
3. ____When I want to feel less negative emotion (such as sadness or anger), I change what I'mthinking about.
4. ____When I am feeling positive emotions, I am careful not to express them.
5. _____When I'm faced with a stressful situation, I make myself think about it in a way that helps mestay calm.
6. ____I control my emotions by not expressing them.
7. ____When I want to feel more positive emotion, I change the way I'm thinking about the situation.
8. ____I control my emotions by changing the way I think about the situation I'm in.
9. ____When I am feeling negative emotions, I make sure not to express them.
10. _____When I want to feel less negative emotion, I change the way I'm thinking about the situation.

Scoring:

Items 1, 3, 5, 7, 8, 10 make up the Cognitive Reappraisal facet.

Items 2, 4, 6, 9 make up the Expressive Suppression facet. Scoring is kept continuous. Each facet's scoring is kept separate

BECK'S HOPELESSNESS INVENTORY

The following is a self-report inventory designed to measure levels of hopelessness. Please answer each question by circling true or false based on how you have been feeling in the past weeks, including today.

1. I look forward to the future with hope and enthusiasm. TRUE FALSE
2. I might as well give up because I can't make things better for myself. TRUE FALSE
3. When things are going badly, I am helped by knowing they can't stay that way forever. TRUE FALSE
4. I can't imagine what my life would be like in 10 years. TRUE FALSE
5. I have enough time to accomplish the things I most want to do. TRUE FALSE
6. In the future, I expect to succeed in what concerns me most. TRUE FALSE
7. My future seems dark to me. TRUE FALSE
8. I expect to get more of the good things in life than the average person. TRUE FALSE
9. I just don't get the breaks, and there's no reason to believe I will in the future.. TRUE FALSE
10. My past experiences have prepared me well for my future. TRUE FALSE
11. All I can see ahead of me is unpleasantness rather than pleasantness. TRUE FALSE
12. I don't expect to get what I really want. TRUE FALSE
13. When I look ahead to the future, I expect I will be happier than I am now. TRUE FALSE
14. . Things just won't work out the way I want them to. TRUE FALSE
15. I have great faith in the future. TRUE FALSE
16. I never get what I want so it's foolish to want anything. TRUE FALSE
17. It is very unlikely that I will get any real satisfaction in the future. TRUE FALSE
18. The future seems vague and uncertain to me. TRUE FALSE
19. I can look forward to more good times than bad times. TRUE FALSE
20. There's no use in really trying to get something I want because I probably won't get it TRUE FALSE

INFORMED PATIENT CONSENT

Date: _____

I.....D/o, W/o, S/o..... .....am willing to participate in the study **"EFFECT OF COGNITIVE BEHAVIORAL THERAPY ON BODY IMAGE DISTURBANCE, EMOTIONAL REGULATION, AND HOPELESSNESS IN PATIENTS WITH CANCER"** The procedure with its complications has been explained to me in local vernacular language. I have fully understood that no special tests and extra expenditure in any form, merely for the purpose of dissertation is being carried out. I am free to opt out the study any time without assigning any reason.

....

Signature of the Witness Signature of the patient

Name:

Sadhya

Signature of Candidate **Signature of Supervisor**

मरीज अनुमति फार्म

तिथि_____

मैं_____ पत्नी/पुत्र/ पुत्री_____

निवासी_____

इस शोधकार्य "EFFECT OF COGNITIVE BEHAVIORAL THERAPY ON BODY IMAGE DISTURBANCE, EMOTIONAL REGULATION, AND HOPELESSNESS IN PATIENTS WITH CANCER"मैं भाग लेने के लिए सहमत हूँ। मैं इस शोधकार्य में भाग लेने के लिए अपनी स्वेच्छा से करतातैयार हूँ। मैं पुष्टि/करती हूँ की यह स्वीकृति देने के लिए मुझे कोई है। मुझे इस आर्थिक प्रलोभन नहीं दिया गया और न ही दबाव डाला गया स है की कर दिया गया है और मुझे यह विश्वाश्य स्पष्टशोधकार्य का उद्दे यह विज्ञान और मानवता के लाभ के लिए है। मुझे इस शोधकार्य में होने वाले जोखिम के बारे में समझा दिया गया है और मेरी समझ में यह जोखिम बहुत मामुली है।

ने के सम्बन्ध में किसी भी समय अपनी मैं इस शोधकार्य में भाग ले कर सकताअस्वीकृति व्यक्त/ करने का सकती हूँ और मेरे अस्वीकृति व्यक्त मेरे इलाज पर कोई प्रभाव नहीं पड़ेगा।

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गवाह के हस्ताक्षर रोगी के हस्ताक्षर/ अंगूठे का निशान

नाम: मना:

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अन्वेषक केहस्ताक्षर

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विद्यार्थी के हस्ताक्षर

ਮਰੀਜ਼ ਰਜ਼ਾਮੰਦੀ ਫਾਰਮ

ਮਿਤੀ_____

ਮੈ_____ਪਤਨੀ/ਪੁੱਤਰ/ਪੁੱਤਰੀ_____

ਵਾਸੀ_____ _____

"EFFECT OF COGNITIVE BEHAVIORAL THERAPY ON BODY IMAGE DISTURBANCE, EMOTIONAL REGULATION, AND HOPELESSNESS IN PATIENTS WITH CANCER" ਤੇ ਚਲ ਰਹੀ ਖੋਜ ਵਿਚ ਹਿੱਸਾ ਲੈਣ ਲਈ ਰਜ਼ਾਮੰਦ ਹਾਂ ।ਇਸ ਖੋਜ ਕੰਮ ਵਿਚ ਹਿੱਸਾ ਲੈਣ ਲਈ ਮੈ ਆਪਣੀ ਮਰਜ਼ੀ ਨਾਲ ਤਿਆਰ ਹਾਂ ।ਮੈ ਇਹ ਦਸਣਾ ਚਾਹੁੰਦਾ ਹਾਂ/ ਚਾਹੁੰਦੀ ਹਾਂ ਕੇ ਇਹ ਰਜ਼ਾਮੰਦੀ ਦੇਣ ਵਾਸਤੇ ਮੈਨੂ ਕਿਸੇ ਵੀ ਤਰਾਂ ਦਾ ਲੋਭ-ਲਾਲਚ ਨਹੀ ਦਿੱਤਾ ਗਿਆ ਅਤੇ ਨਾ ਹੀ ਕੋਈ ਦਬਾ ਪਾਇਆ ਗਿਆ ਹੈ। ਮੈਨੂ ਇਸ ਖੋਜ ਦਾ ਮਨੋਰਥ ਸਮਝਾ ਦਿੱਤਾ ਗਿਆ ਹੈ ਅਤੇ ਮੈਨੂ ਇਹ ਭਰੋਸਾ ਦਵਾਇਆ ਗਿਆ ਹੈ ਕੇ ਇਹ ਖੋਜ ਵਿਗਿਆਨ ਅਤੇ ਮਾਨਵਤਾ ਦੀ ਭਲਾਈ ਲਈ ਹੈ ।ਮੈਨੂ ਇਸ ਖੋਜ ਵਿਚ ਹੋਣ ਵਾਲੇ ਖਤਰੇ ਬਾਰੇ ਸਮਝਾ ਦਿੱਤਾ ਗਿਆ ਹੈ ਅਤੇ ਮੈਨੂ ਇਹ ਯਕੀਨ ਹੈ ਕੇ ਇਹ ਖਤਰਾ ਬਹੁਤ ਮਾਮੂਲੀ ਹੈ ।ਮੈਨੂ ਇਸ ਖੋਜ ਕੰਮ ਵਿਚ ਹਿੱਸਾ ਲੈਣ ਦਾ ਢੰਗ – ਤਰੀਕਾ ਸਮਝਾ ਦਿੱਤਾ ਗਿਆ ਹੈ।

ਮੈ ਇਸ ਖੋਜ ਕੰਮ ਵਿਚ ਹਿੱਸਾ ਲੈਣ ਬਾਰੇ ਆਪਣੀ ਰਜ਼ਾਮੰਦੀ ਕਿਸੇ ਵੀ ਸਮੇ ਵਾਪਸ ਲੈ ਸਕਦਾ ਹਾਂ/ ਸਕਦੀ ਹਾਂ ਅਤੇ ਮੇਰੀ ਰਜ਼ਾਮੰਦੀ ਵਾਪਸ ਲੈਣ ਦਾ ਮੇਰੇ ਇਲਾਜ ਤੇ ਕੋਈ ਅਸਰ ਨਹੀ ਹੋਵੇਗਾ।

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ਗਵਾਹ ਦੇ ਹਸਤਾਖਰ ਮਰੀਜ਼ ਦੇ ਹਸਤਾਖਰ

ਮਿਤੀ_____ _____ਮਿਤੀ

ਪਤਾ _____ ਪਤਾ_____

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ਨਿਰੀਖਕ ਦੇ ਹਸਤਾਖਰ

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ਸਿਖਿਆਰਥੀ ਦੇ ਹਸਤਾਖਰ